Archive

The Subscription Magazine for Acorn Users

JANUARY '95

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Programming Workshop – 1

NCS Technical Services

Acorn to Offset via PostScript

Text Import – 2

Reviews: ArchiTech, Around the World, Conjugexl, Civil War Datafiles, Desktop Hacker, Earthwarp, Equate, HQ-Tracker, PrimeSolver, Schema 2, Simon the Sorcerer, Sleuth OCR, Squirrel 2 Comments.

ncs

NORWICH COMPUTER SERVICES

All change at NCS

Please accept our apologies if you haven't been served by NCS "in the manner to which you have become accustomed"! It's been all-change time and we still haven't sorted ourselves out properly yet. Dave Webb has gone off to Bath to take up a programming job there so we are one engineer down at the moment. We wish Dave the very best for the future and thank him for all he has done here. Many customers have commented about his friendly and helpful manner in dealing with their questions and difficulties.

Still going strong

(I'm trying desperately to put things in a positive way but I have to be myself, and that includes being honest.) NCS has had its difficulties this year – but what computer company hasn't?! Lack of Risc PCs to sell hasn't exactly helped but at least we now have all models of the Risc PC in stock! I believe we are over the worst although we have had to make some regrettable changes at NCS (details on page 17). Things are much more encouraging both on a personal level (my depression has now completely lifted, for which I thank God) and within the company. In particular, the subscription base is continuing to grow steadily which is very good news in these times of recession. Welcome to all the newcomers this month!

Look to the future

So, let's look to the future and wait and see what technological innovations Acorn has up its sleeve. OK, they are not the world's best company when it comes to marketing(!) but they are exciting to work with – there's never a dull moment with Acorn!!!

Very best wishes for a joyful Christmas and a prosperous (in the true sense) New Year,

Paul Beverley

Government Health Warning – Reading this could seriously affect your spiritual health.

It could be you! How many tickets have *you* bought for the National Lottery? Just think what life would be like if you won a million pounds! Think of all those things you could buy. Think of the security it would bring – no more financial worries for the rest of your life. It really would be great, wouldn't it?!

But have you really thought about the implications of suddenly having pots of money? Have you thought how it would affect your friendships and your relationships with your family? Have a think now.

How can you be sure that all those 'friends' that you seem to be getting are really 'friends' and aren't just after your money? Can you really trust them? How will your *real* friends feel if they think that you don't trust them? Suddenly, you don't know who you *can* trust. What did we just say about 'security'?

I'm not trying to argue against the National Lottery but I'm trying to use it as an example to show how easily we swallow the lies of the media. I'm sorry but I just don't believe that life *would* be wonderful if I had lots of money... or the 'right' car or the 'right' clothes, or whatever other material goods they say I 'need'.

The only things that are *really* important are our relationships with one another. (I would use the word 'love' but that too has been hijacked!) Proverbs 15v17 puts it well, *"Better a meal of vegetables where there is love than a fattened calf with hatred."* Simple but profound.

And I know I can't prove this, but from my experience, what is *really, really* important is our relationship with God. Get *that* right and many other things suddenly make sense. Again from Proverbs, in the same chapter, but verse 16: *"Better a little with the fear of the Lord than great wealth with turmoil."*

Anyone who has come to know the love of God as seen in Jesus knows what true riches are. *P.B.*

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Products Available

• **10/10 Driving Test** – Six games designed to make learning and revising the essential facts of driving fun. You can choose which areas you wish to work on, and progress at your own speed. You can also use the questions from the games outside of the game environment if you just want to test your knowledge. The price is £25.95, from Ten out of Ten, or £24 from through Archive.

• **Acorn Desktop C and Assembler** – The copies of Acorn's C and Assembler packages we had on special offer last month all went very quickly. Those who were disappointed may be interested to know that Acorn have now dropped the standard prices of these items. They are now: Desktop C £149.95 inc VAT (or £138 through Archive) and Desktop Assembler £99.95 inc VAT (or £92 through Archive).

(As a special offer *up to 31st December only*, those who tried to get the *really* cheap offer copies can order them at £120 and £80 respectively. Ed.)

• **Acorn Risc PC PC486 Cards (almost!)** The latest news on the PC card is that the first 500 will be built as evaluation cards in Q1 1995. The first cards will be shipped to press, key dealers, educationalists and customers starting in January. *(Does Anyone know what defines a 'key' customer?)* Acorn has committed to produce 10,000 cards and anticipates any order backlog will be fulfilled by the end of Q1 1995. The cards will use the TI 486 SXL chip running at 33MHz. *(Watch out for the flags flying over 96a Vauxhall Street! Ed.)*

• **APDL Clipart CD Number 1** – This contains nearly 500Mb of sprites, Artworks files and drawfiles. Most is black and white clipart of reasonable size to give clear printout for DTP purposes. These are placed in directories divided by subject, and there are directories on Animals, Cartoons, History, People, DTP (borders, corners, decorations, etc), Places, Religion and Transport. There are also over 580 256-colour sprites covering a variety of subjects. The CD also contains CC's Artworks Viewer and the Earthmap application. The price is £28 inclusive (no VAT) from APDL or £28 including VAT from Archive.

Introductory special offer – £25 from APDL or Archive on orders received up to 31st December 1994.

• **Archiboard IAP** – The Supreme Software Systems' BBS Software Archiboard (which we use to run Archive BBS) now has Internet support. The range of packages has been increased, starting from the entry level version at £50, giving full BBS functionality. A network version which, in addition, allows access to the BBS from another machine over an AUN network is £89. These can be purchased

Archive Monthly Program Disc Contents

- Various files and applications from Paul Hobbs' Advanced Basic Programming Column – page 66.
- Screengrab module for !ChangeFSI from Gerald Fitton's Column – page 31.
- Monitor recovery program from Hints & Tips Column – page 28.
- Applications from Paul Hooper's Multimedia column – page 53.
- PD Pocket Book applications from Pocket Book Column – page 35.
- Sample program from Matthew Hunter's Programming Workshop – page 21.
- Monitor definitions & Mac reading software from Keith Hodge's Risc PC Column – page 11.
- List of free scientific software + updated !UnitConv from Chris Johnson – page 39.
- Squirrel query file from Robert Bishop, Comment Column – page 52.

CD-ROM for only £29 ?!

Yes, you can have a CD-ROM drive for just £29 inc VAT – all you have to do is to buy the Risc PC to put it in before 31st December 1994! Send us your order for either an ACB25 (5Mb) or ACB45 (9Mb) and we will give you a voucher which you send (with a cheque for £29) to Acorn who supply the CD-ROM. This is the Cumana 300i CD-ROM, not the iA, i.e. *without* the audio mixer but this mixer can be bought separately for £49 +VAT from Cumana.

Risc PC? – Buy now, pay later

Another special offer (which can be taken with or without the CD-ROM offer) is a deferred payment plan. Pay a deposit now and make 24 monthly payments at 1.08% (APR 13.75%) but your first payment is delayed for four months, i.e. not until April. (You can also pay off the full amount at any time.) For more information, ring 01223-254428 or the NCS office on 01603-766592.

with the Internet Access Package (IAP) which includes a year's access to the Internet via Demon Internet Ltd. The Entry level version is £200, and the network version is £240. Postage is £2 within the mainland UK, £5 elsewhere. Full details and site licence details are available from Supreme Software Systems. (VAT not applicable.)

• **Archive indexes?** – Several readers have asked recently whether we produce annual indexes to the Archive magazine. The answer is that we used to do so but felt that, for the huge amount of work involved, they were not really worthwhile, especially as there are electronic alternatives.

I personally have to refer to old articles very frequently and find the ArcScan database and the Archive words discs invaluable...

• **ArcScan Data** – For many, many years Eric Ayers has faithfully generated the ArcScan data month by month and this is available on Archive Utilities Disc N° 3 for £2. When there is space on the monthly disc, we put on an update to this data. ArcScan itself costs £14 through Archive.

• **Archive Words Discs** – For those of you with 4Mb+ machines, the Words Discs form an alternative and very effective way of searching for that elusive reference that you are *sure* you have read *somewhere* in Archive. Just load up the appropriate file into Edit and search for the relevant word or words. Each disc is £2 and contains the words from four magazines. (There is so much information that you can't fit five magazines on an 800Kb disc even though it is just the text and no diagrams!) If you have a machine with a fair amount of memory, you can join these text files together and search two or three volumes at a time – which is very helpful, I find. *(What would make my life complete would be if someone would write a search routine that had two words as input and looked for occurrences of one word appearing within x-number of bytes of an occurrence of the other word. Any offers, anyone?)*

• **Archive Utility Disc 8** – This is the RISC OS 3.1 Upgrade Disc. There are new versions of !Alarm (2.61), !Calc (0.53), !ChangeFSI (0.95), !Chars (1.17), !PrintEdit (0.38), !T1ToFont (1.26) and a couple of utilities to select and deselect the 3D desktop. All applications now check the 3D bit in CMOS ram and load the 3D templates if appropriate. Previously, this was done via !NewLook. Unfortunately, they cannot be installed into the Apps icon on the iconbar, but will need to be loaded from disc. This disc is available from Archive for £2.

• **Bitfolio Clipart** – LOOKsystems have two more packs each with 100 drawfile cartoons. The first "More Cartoons" is a general selection and the second "Xmas Collection" is more specifically festive – holly, reindeers, Santas, penguins, turkeys, TV, presents, booze, etc. These cost £20 each from LOOKsystems or £20 through Archive.

(The Xmas Collection also contains a strange cartoon of a baby surrounded by some men in fancy dress – has

anyone got any idea what that has got to do with Xmas? Ed.)

• **Chess II** – David Pilling's popular Chess program has been updated with a choice of 2D or 3D boards, save game as sprite, drawfile or text, rotate board, show hint, easy play-level setting, replay last move, show history in continuously updated window, display possible moves for pieces, improved game play, RISC OS printer driver support. Chess II is £16 either from David Pilling or through Archive. Upgrade from Chess I by sending old disc plus £10 to DP (not to NCS).

• **Clan Acorn '94** – This is a club designed to bring the people who use Acorn Computers together with those designing and making them. All members will receive a membership card with a unique number offering Clan members exclusive offers and information from Acorn.

The first offer will be the chance to take out an Acorn Visa credit card. Then members will have the opportunity to obtain Acorn's C++ and the new developer toolkit at a special price. Third parties are also working with Acorn to provide multiprocessor capabilities for Risc PC computers and connectivity kits to allow users to access the Internet.

Members will also receive information about projects and technologies, opportunities to acquire appropriate early releases and beta-releases, discounts on current products and a chance for end users to give Acorn input on new developments.

Life membership of the Clan is £15 which includes a promotional pack of Acorn merchandise. To join Clan Acorn, contact Acorn Direct (Vector Services) on 01933-279300 and ask for an application form to be sent to you.

• **DrawWorks** – a suite of five programs to increase the power of Acorn's standard Draw application. DrawExtra allows you to control the defaults for Draw, increase the undo buffer size, and gives a new buttonbar with features missing from the Draw toolbox, including Zoom, Save and Print. DrawInfo gives details of the size, number of objects and so on of a drawfile. DrawKern allows the kerning of font within drawfiles. DrawMerge takes several objects and merges them to create a single path, making interesting patterns, and some strange effects – some clipart is included to demonstrate. DrawScrunch distorts draw files as if they had been drawn on a "piece of scrunched up paper." The price is £15 inclusive from iSV Products.

• **Eidoscope** – The Eidos home video editing system is now available. To use it, you will need a Risc PC (minimum 4Mb) fitted with an Eagle M2 card. Features include easy to use control panel; real time edits, mixes and wipes; Full video/audio synchronisation; Imports sprite animations; single frame export; 12.5 frames per second @ 160×120 pixels and 32,000 colours. Full screen playback is possible, and the files are fully compatible with other Acorn packages. The package can be purchased for £169 +VAT from Computer Concepts or £185 through Archive.

• **EMR products** – Anyone wishing to get hold of any of EMR's music products should contact Le Computer in Chelmsford who will be handling them in future.

• **Eureka 3** – Longman Logotron have released version three of their spreadsheet package. Amongst

Acorn Christmas Computer Sale...

Up to Christmas, A3010s are available at up to 29% off.

A3010 AP (1Mb)	£399 → £299	25% off rrp
A3010 AP (1Mb) + AKF52	£699 → £499	29% off rrp
A3010 EY or LC (2Mb)	£499 → £399 + free AP!	20% off rrp
A3010 EY or LC (2Mb) + AKF52	£799 → £599 + free AP!	25% off rrp

EY= *Early Years Pack* = Talking Start-Write, Flossy the Frog, Mouse in Holland, Doris the Dotty Dog, Gemini, Amazing Maths & Paint Pot.

LC = *Learning Curve Pack* = Advance + PC Emulator + various demos.

AP = *Action Pack* = Zool + StartWrite + various demos.

the enhancements are: easy interchange with Lotus and Excel, easy linking of spreadsheets with Impression, triple toolbar, improved graphics support and background printing. Eureka 3 costs £99 +VAT or £110 through Archive. Site licences are available: £240 +VAT for primary and £400 +VAT for secondary (£265 and £440 through Archive). Upgrades are available through Longman Logotron: £29 +VAT for single user and £99 +VAT for S/L.

• **Fonts** – A new Acorn font company has been formed by Adrian Look of LOOKsystems and Dave McCartney of The Datafile. The first two offerings from The Font Company Ltd, as it is called, were Letraset Digital Typefaces (29 typefaces for £35 inclusive), and URW Typeface Library (75 typefaces for £75 inclusive). These are highly professional font conversions from well-established font companies, Letraset and URW. These font packs are available through Archive for £34 and £72 inclusive of p&p.

The very latest release is a huge range of Monotype Classic Fonts giving you access to hundreds of top quality fonts at Acorn-level pricing – rather less than PC or Mac users would have to pay! There are eight packs of fonts, each with between 50 and 60 faces and each costing £60 inclusive from the Font Company or £58 through Archive. If you would like a full listing of these eight Font Packs, so that you can select the fonts you would like, give the Font Company a ring.

• **Heavy mouse balls** – Weighing in at four times the weight of the standard mouse ball, these fit neatly into the Acorn mouse, giving it a more positive response. They are available from Oak Consultants for £3 including postage, packing and VAT.

(Message to Oak Consultants: Sorry but we have lost your address! Anyway, that means you get two mentions in Archive because we'll have to put it in again next month and put your address in the Factfile. Ed.)

• **In Ancient Egypt Times** – This is a range of materials in printed and disc form for the study of Ancient Egypt. You will need a copy of KeyNote or Key Plus data handling packages to use the disc information. Topics include Gods and Pyramids, the Nile and Farming, Everyday Life, and Modern Discovery. Text can be converted to Hieroglyphics, and the text and graphics in the package can be exported for use in children's own projects. The price is £17 +£2.50p&p +VAT from Anglia Television.

• **iSV 100 outline fonts** – A new pack of 100 RISC OS 3 format fonts, in 36 separate families has been launched by iSV Products. Both book and display fonts are included in the pack and all fonts include the full latin 1 character set, scaffold lines and automatic kerning data. The price is £40 inclusive.

• **iSV Font Designers' Toolkit 2.5** – This is made up of four applications for designing fonts. Font Catalogue is used for creating printed font catalogues, with on-screen WYSIWYG display of printed results. FontKern allows you to edit the kerning information of RISC OS 3 fonts, and even

convert RISC OS 2 fonts to RISC OS 3. FontTrix allows the generation of font families from one master font. Oblique, Mirror Semibold and many more weights can all be generated quickly, viewed, and made available to other applications. Finally, iSVMetric allows editing of a font's metric data, to tighten character widths, for example. The pack price (including a free copy of FontED, Acorn's font editing program) is £30 inclusive.

• **Ladakh** – A geography information pack containing parallel datafiles for families and life in the United Kingdom and Ladakh (Northern India). Records of 200 children are provided, half from a Tibetan village, and half from three schools in the UK. Accommodation, travel, eating habits, pets and many other fields can be compared, and a print pack helps teachers with ideas and worksheets. The price is £15 +£2.50p&p +VAT from Anglia Television, and you will need a copy of KeyNote or Key Plus data handling packages.

• **Laser printers** – Computer Concepts are no longer able to supply any direct drive laser printers because Canon have discontinued both the LBP4 and the LBP8 and have not yet replaced either of them with anything suitable. This leaves Acorn users with two alternatives...

– Calligraph direct drive lasers – If you want an A4 direct drive laser, Calligraph do a 1200 dpi single bin Sharp printer at £999 +VAT (£1150 through Archive) and a dual bin version at £1149 +VAT (£1290 through Archive). If you can afford to go to A3, they do a 1200 dpi Toshiba TQ-1200 at £4995 +VAT or £5575 through Archive. These printers all do 8 pages/minute. Toner for the Sharp is £120 through Archive (estimated 15,000 pages), the drum kits are £135 through Archive (estimated 30,000 pages), and the toner and drum for the Toshiba are £85 (5,000 pages) and £475 (20,000 pages) respectively through Archive.

– Standard laser printers – We have selected a couple of the best non-direct-drive laser printers which can be driven from Acorn's own printer drivers or CC's Turbo Drivers. The **Panasonic KXP4410** is a 5 ppm, 300 dpi, 0.5Mb laser of proven pedigree which costs £570 (or £620 with a Turbo Driver) through Archive and the **Epson EPL5600** is the latest 6 ppm, 600 dpi laser which has 2Mb RAM as standard and yet only costs £820 (or £870 with a Turbo Driver) through Archive. In between these two is the **Epson EPL5200** which is a 6 ppm, 300 dpi laser with 0.5Mb RAM (expandable) and costs £650 (or £700 with a Turbo Driver) through Archive. All three of these laser printers come with a 12-month on-site warranty.

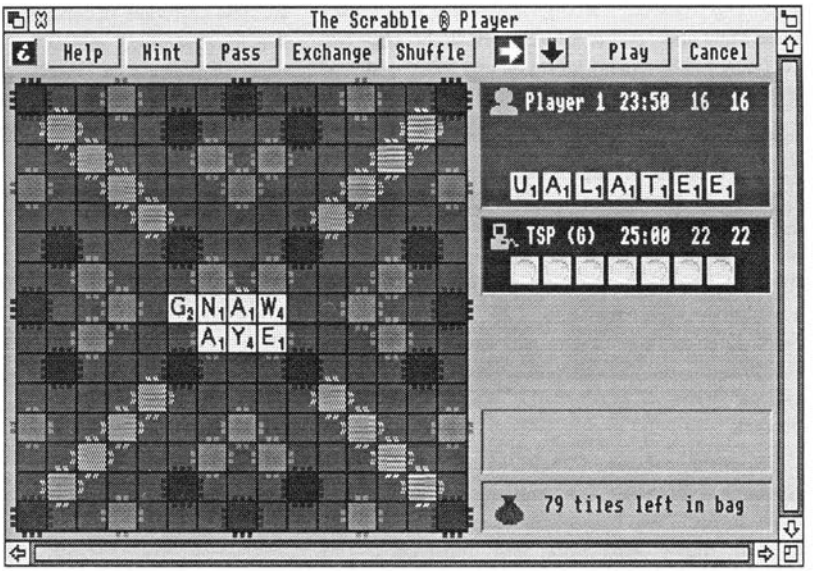
• **MacFS Light** – Computer Concepts are now offering a floppy-only version of MacFS at £49 +VAT (£55 through Archive). If you want to read and write SCSI devices such as removable hard drives then you will need the full version at £108 through Archive. MacFS Light needs an Acorn machine with high density floppy drive (i.e. A5000 or later) and RISC OS 3.1 or later. (The price now compares favourably with AppleFS from Oregan, which is also floppy-only, at £58 through Archive.)

• **PipeEd for PipeDream** – A new teaching pack designed to help teach first time users of PipeDream. The pack includes two sets of A4 cards – teacher and student sets, written as a series of nine lessons, each around ninety minutes, to introduce the ways in which PipeDream can be used. The teaching notes are detailed, giving topics for discussion, and describing the tasks to be completed. The Student pack briefly outlines each of the tasks, and includes a disc containing all the tasks for the lessons. It can also be used at home or in the office – it is not limited to education. The packs are available for £25, extra teacher packs may be purchased at £10, and student packs at £15.

• **Pocket Book II Programmer's Guide** – (No, don't get too excited, it's not available yet – that was just to get you to read this paragraph!) Until the proper PB II Programmer's Guide is available, the best you can do is to get a copy of the Psion 3a Programmer's Guide which is available by sending a cheque for £6 (made out to Psion UK Ltd, I presume) to Customer Services, Psion UK Ltd, 85 Frampton Street, NW8 8NQ or ring them on 0171-262-5580.

• **PrimeMover** – Minerva's new release is claimed to be "the first real-time animation program for the Acorn platform". It allows you to create animation from sprites and, once the animation is created, it

can easily be changed by simply clicking and dragging with the mouse. It allows you to trim and/or mask your sprites and to reverse them horizontally or vertically. PrimeMover costs £69.95 inc VAT from Minerva or £66 inclusive through Archive and will run in 1Mb but 2Mb is recommended.



• **ProArtisan 24** – Clares have launched their 24-bit art package, ProArtisan 24. It costs £169.95 inc VAT (or £155 through Archive) and there is an upgrade through Clares of £49.95 from PA2 or from "ANY other art package" for £85 inc VAT. Site licences are available at £499 +VAT for primary and £699 +VAT for secondary.

• **Risc Disc CD** – This is a new CD-ROM aimed at Risc PC owners. Contents include utilities (programming, DTP, disc, desktop), Replay movies, Photo CD images, JPEG images, Artworks files, drawfiles, PC animation players (AVI, FLI and MPEG), MPEG movies, as well as demonstration software from many Acorn software houses. The price is £19.95 from Uniqueway Ltd, or £19 through Archive.

• **Rosie & Jim Talking Activity Packs** – For young infants who are fans of TV's Rosie & Jim programme, Sherston Software have produced the first two of their talking activity packs: "Duck loses his Quack" and "Jim gets the Sneezes". These allow early or non-readers to enjoy the company of Jim & Rosie and all their friends. Click on the pictures and words and hear the digitally-recorded voices of Rosie and Jim speak from the computer. Each pack costs £10 +VAT from Sherston or £12 including p&p through Archive.

• **Scrabble for the Archimedes/Risc PC** – My favourite game is here at last! US Gold have finally released Scrabble for Acorn computers and, not surprisingly, it's excellent. You can play against each other or against the computer – or get the computer to play against itself, although it's so fast you could do with an 'action replay' facility. You can set the level of vocabulary and ingenuity that the computer uses when it is playing against you, so you can use it to build up your own level of skill. In the practice mode, every time you play, if it thinks it could have done better, it suggest dozens of alternatives that you *could* have played and shows you how many more points you *could* have got (but doesn't allow you to go back and have your go again. Drat! The manual (which I have had to photo-enlarge from A5 to A4 because the type is so small) lists all the permissible two letter words (105 in all) and the gameplay uses them all to very high-scoring effect, sometimes. The trouble is that when you then play "real" Scrabble with your friends and relations at Christmas, you won't be too popular. You score 22 points with "AYE" as in the illustration and they will challenge it. They won't be too impressed when you say that "NA" is the Scottish way of saying "no" and that "AY" means "always" or, for that matter

that "OO" is wool (Scots), "DA" is a heavy Burmese knife and "AI" is a three-toed sloth! They will probably refuse to play with you any more – still, at least you'll be able to play against the computer!

Scrabble costs £27.99 + p&p from US Gold or £27 through Archive.

• **SCSI II interfaces** – The Cumana SCSI II interfaces are now available at £199 +£7.50 carriage +VAT from Cumana or £235 inclusive through Archive. A cable for connection to external drives is available through Archive for £27. This has the new SCSI II connector on one end and an Amphenol (Centronics) on the other end. For connection to internal drives, a standard IDC cable is all that is needed.

• **Shoemaker-Levy CD-ROM** – This is the Network Cybernetics Corporation's CD-ROM title SL9: Impact '94. It contains hundreds of images, movie sequences and technical information related to the July 1994 collision of the periodic comet Shoemaker-Levy 9, and the planet Jupiter. Stills are stored as JPEG, GIF and TIFF, video sequences as MPEG and FLI/FLC. The technical information is stored as ASCII or PostScript. Unfortunately, the viewer applications are all for PCs or Macs, but with ChangeFSI and Edit, the stills and texts are accessible on RISC OS machines, and there are PD MPEG and FLI/FLC players available. The price is £25 including postage from Lambda Publications.

• **TextEase** – This is a new presentation package for letters, posters, notices and so on. Features include a button bar for the frequently used functions, and dynamic text. The prices is £25 from Ivoryash limited, and a demo disc is available for £2.

• **UK Schools Internet Primer** – Koeksuster Publications have produced a book to provide information, mainly aimed at schools, on how to use Internet and what facilities are available through Internet. This costs £9.95 + p&p from Koeksuster or £9 inc p&p through Archive. For more details, see the review on page 24.

Review software received...

We have received review copies of the following: •Ancient Egypt Key Datafile (e), •APDL CD (PD/a), •BitFolio Christmas Cartoons (a), •BitFolio More Cartoons (a), •Blinds (u), •GameOn! (g/u), •Grasshopper (e), •Ladakh (Tibetan) Key Datafile (e), •Look! Hear! (e), •Map Importer (e), •Mouse in Holland (e), •MouseTrap (u), •PrimeMover (e/a), •TableMate 2 (u).

e=Education, b=Business, bk=Book, c=Comms, g=Game, h=Hardware, l=Language, u=Utility, a=Art.

If you would like to review any of these products, please contact the Archive office. Potential reviewers will need to show that they would use the product in a professional capacity or that they have some knowledge of the particular field. **A**

TableMate 2 is the latest version of Dalriada's TableMate tabling utility. TableMate 1.1 has been bundled with Impression Style and Publisher.

TableMate 2 brings:

- Word wrapping within cells
- Draw & Equasor files inside cells
- Full colour handling
- Variable ruling widths
- and much more!!!
- **Upgrade from Style/Publisher £17-50 inc. p&p.**
- **Full price £32-50 inc. p&p**

Acorn World - Stand 119
New DTP utility preview

Dalriada Data Technology
145 Albion Street, Kenilworth
Warwickshire, CV8 2FY
Phone/Fax. 01926-53901

TableMate 2

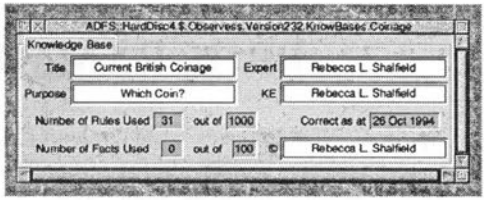
Observess

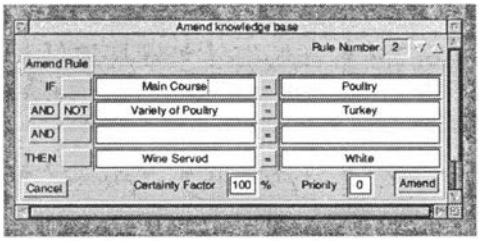
The Expert System Shell for all Acorn 32-bit RISC OS Microcomputers

Newly Released Version 2.3x

Fully Tested on the RiscPC!

• 1120K RAM and RISC OS 3.1 or later required • Hard disc NOT essential • RISC OS compliant • Maximum of 1000 rules each containing upto three conditions and one conclusion – Rules may be 'linked' together • AND and OR are both supported for joining conditions • Supports string, integer, boolean and floating point variable types • Supports negative facts and rules, certainty factors and priority values • Rules and facts may be added, displayed, reset or deleted - Rules may also be amended and sorted •





• Support for intermediate goal • Multi-tasking forward chaining inference engine • Some aspects of inference engine user-controllable • Explanation facility - May be viewed during and after consultation session • Recommendation accumulator - Stores recommendations from a previous consultation session for input into a later one • Handles one knowledge base file at a time - Knowledge base files may be appended • Function key and toolbox shortcuts •

• Drag and drop between windows • Find/replace facility • Sample knowledge base files supplied • Includes run-time edition which may be distributed free of royalties • Uses unique KnowBase file format • Background knowledge base information may be saved • Knowledge base may be exported as ASCII text file • Extensive 16-page A4-size user guide • Free postal helpline available • Occasional newsletter sent free to registered users • Continuous development assured •

Single User Licence £40

Site Licence £120

The run-time edition is available for £2, refundable upon purchase of the development edition.

No VAT is payable.
All prices include postage and packing.

E&OE. Prices and descriptions are subject to change without prior notice.

Available from:

CHERISHA software

Cherisha Software,

51 Swallowfield Road,

Charlton,

London SE7 7NT

Tel: (0956) 389500

A previous version of Observess was reviewed in the July 1994 issue of Archive magazine. Additional details are available from Cherisha Software upon request.

Recruitment

Applied Photophysics

Applied Photophysics Limited
201-205 Kingston Road, Leatherhead
KT22 7PB, United Kingdom

PROGRAMMER REQUIRED

Applied Photophysics Ltd manufactures and supplies high speed kinetic instrumentation worldwide for research in the fields of chemistry and biochemistry. This typically involves high speed photometric detection equipment and fast, computer controlled, data acquisition. We currently use Acorn computers as workstations for controlling the instrumentation and as a platform for data analysis.

To support our expansion we are now looking for an enthusiastic, self-motivated programmer to join our development team. He or she will perform a key role in creating the innovative and attractive software we need to support our new generation of instruments.

The successful applicant will be a technically orientated C programmer with experience of developing RISC-OS applications on the A5000 or RiscPC, though the opportunity to develop for other platforms and processors may well arise in the future. The position will require involvement in areas of high speed data acquisition and instrument control as well as user interface development. Hardware interfacing knowledge together with experience in the development of relocatable modules in RISC assembler would be advantageous. Scientific experience, particularly of chemistry, would be beneficial but not a principal requirement.

Salary is negotiable and dependent on experience.

Applications with C.V. to:

Dr Peter King
Applied Photophysics Ltd
201-205 Kingston Road
Leatherhead
Surrey KT22 7PB

Risc PC Column

Keith Hodge

Monitors

Bob Bourne reports that he has been experiencing problems with colour impurity on the three(!) AKF85 monitors that have passed through his hands. There does seem to be a hint of magnetic radiation from the computer power supply involved in this problem, as Acorn/Granada MicroCare can now reproduce the problem when they use the same desk layout as Bob.

Software information

In Archive 8.1 p39, I mentioned that Arthur Brend had been having problems with the speed of operation of Knowledge Organiser 2. I have received a most informative letter from Mr D Jackson of Clares Micro Supplies. In it, he points out that the two biggest factors with file searches are disc speed and the size of the configured ADFSBuffers. An example search of a 7Mb file took 5 min 59 seconds, with ADFSBuffers set to 0, but just 1 min 17 seconds with ADFSBuffers set to 40. The Risc PC was then noticeably faster than the comparison A540.

Software compatibility

Now that I am using a dual serial port card, with the fax modem on the second port, I have realised that there are real problems in store when I receive my 486 PC card. My intention is to operate the remote access regional telemetry software using the PC card. However, the PC Emulator only supports the built-in serial port I believe. Will the new PC card BIOS software allow ports on extension serial port cards to be mapped (via the block drivers?) to the DOS COMx commands? This is a must as far as I am concerned, and will be so for a very large proportion of the IBM PC users who are persuaded to purchase a Risc PC. They are used to being able to purchase a dual card, plug it into an expansion slot, then add a line to the "AUTOEXEC.BAT" file and away it goes, giving full access to the extra ports via the "COMx" command. They are not going to want to know about the Acorn side of programming.

One further point on the serial port is worth mentioning. There are still programs around which do not seem to comply with the Acorn rules even though they are described as "compliant". I was downloading some files from the local Packet Radio Bulletin Board and noticed that every time I held <select> down on the title bar of MultiStore (v2.00), the serial data stopped flowing! Further tests revealed that this happens not only with MultiStore, but also with Style (v3.04), but *not* filer windows, ArcFax, TeleCFax, Printers. Are these applications faulty? Or are they interpreting the guidelines in a different way?

For those of you who, like myself, have an occasional requirement to read Apple Mac discs (high density), I have sent Paul a copy of a PD program which runs under the PC Emulator and which will read these discs. Please note, (1) it is fragile! (2) I accept no responsibility if it eats your disc, so use a backup! *(It's on the monthly disc. Ed.)*

In two very interesting letters, Bob Bourne reports that he has been experiencing problems with Eureka 2 on the Risc PC when printing to CC's TurboDrivers(v4.0). The two products are incompatible, and the only solution found so far is to print to disc via the Acorn driver and then print the file from the TurboDriver. The long term solution is to upgrade to Eureka 3, which should be available soon.

Also, there was a problem with Fabis Computing's EasyFont 2 but, in just two days, an update was received and all was well again.

Thank you to all the readers who have written about the Wimpslot problems with the Risc PC. As you have all pointed out, and as Dave Holden mentioned last month (8.3 p39) the problem occurs because memory is assigned in fixed 4Kb blocks, unlike the Archimedes, which assigns memory in variable sized blocks up to 32Kb (dependent on main memory size). Basic programs are therefore often given less free memory to work with on the new machine. So far so good, but it would really be nice if Basic complained with "Insufficient free memory", or some other sensible error message, and not, "Too many nested loops", etc. Surely, Basic keeps track of its memory pointers and knows when they are going to clash?

Hardware and software news

David Evershed has purchased a Cumana SCSI II interface, but ran head first into a number of problems. The first was a clash with the virus killer supplied with the machine, but this was easily cleared by shifting the load line to a position later in the bootup sequence. The second problem has hopefully also been resolved... David had already purchased a Pioneer DR-U104X CD ROM drive, a single disc, quadspeed drive, but then found to his dismay, that there is no driver module available for the drive. Cumana have now advised him that they will be supporting this model so the driver module is now eagerly awaited. It would seem that it is essential before purchasing a CD ROM drive, to check with your SCSI interface manufacturer that a suitable driver is available.

Further to my comments on desktop boot sequence last month, please note that although the directory "$.!Boot.Choices.Boot.PreDesk" does not contain any applications, just obey files, this does not mean that you *cannot* place applications here. A typical use for this area is for applications such as SerialDev which is provided with the Serial Port's dual serial port card and which just sets up a path to a directory inside the application. This path must be defined before any applications make use of the card. By placing software here, it is guaranteed to be run before anything in the "$.!Boot.Choices.Boot.Tasks" directory – most useful!

Readers' comments

Don Lewis mentioned in his recent letter how difficult he was finding the change to the new Risc PC keyboard layout. Coincidentally, I have (after a long break) been using the BBC Master for Eprom programming. This has been a real shock, I had forgotten the terrible trouble I had changing from the Master to the original Archimedes keyboard... Don also mentions that he does not like the screen blanking as the re-activation takes so long. I personally find that screen blanking (and by this I mean turning off the video signals so the screen goes blank, thereby preventing screen burn, not shutting down the monitor to save power), is much overrated, as in commercial use, monitors have to run for thousands of hours with a stationary image before a permanent residual image starts to appear.

Wish list for next Risc PC / New issues of Basic

Please, Acorn, with the next issue of Basic, can we have an extension to the "CASE" statement? Thus:

```
CASE variable OF
WHEN 1 TO 4
ENDCASE
```

The TO function is provided in a number of other basics and makes translations from one platform to another much easier. Also how about "IFEXISTS", for file handling and "REDIM" for array handling.

Gripe of the month

Where is my ARM 710?

Questions of the month

(1) Does anyone have a version of the editor, Zap, which works on the Risc PC?

(2) My machine spends all day waiting to receive fax messages and so the utility to spin down the IDE drive is brilliant! But, I also have a SCSI drive, which is used for backups. I would dearly like to be able to stop this spinning whilst the Risc PC is acting as a fax machine. Can it be done?

Tailpiece

I have now been using my Canon BJ230 inkjet printer with the same cartridge, for over 12 months! How? By refilling it with Rotring "Brilliant" black ink which is available from most art shops and at £1.99p per bottle, each of which does three to four refills – it is very economical! Plus, the print quality for text work is, I find, indistinguishable from the original ink.

Paul has asked if I would like to provide some information about packet radio on the Risc PC. During the Christmas holidays, I will try to put together a small article explaining what it is used for and how you can get involved. You do require a Amateur Radio licence, but there is no problem here, a short course at the local Technical College will soon get you through the City and Guilds examination. More details next month.

Would anybody like to assist with the software compatibility list? As a user of mainly business software, I get little contact with games and other general software. This means that I find it difficult to be "in touch" and hence aware of what is happening

in different areas. If anybody would like to run the list please get in touch – possibly more than one person, each covering their own interest and I will bring it all together.

As usual, I can be contacted by letter at the HES address on the back page, by telephone after 7p.m. or by Packet Radio, from anywhere in the World, as GW4NEI@GB7OAR.#16.GBR.EU. A

Simon the Sorcerer

Andrew Rawnsley

Gamesware's latest release is only one year late! After being much hyped before *last* year's Acorn World show, and continually 'almost ready' for the last twelve months, Acorn World 94 was the ideal launch venue for this awesome adventure. Indeed, after last year's disappointment, Gamesware didn't even send a press release concerning its new releases, and so Simon the Sorcerer magiced his way onto an unsuspecting public.

Still, it's been worth the wait – indeed some would say that, as a result, many more of us will be enticed by the lure of nine discs (yes, *nine*!) packed with 34 soundtracks and 6Mb of animation, all mixed up with lashings of gameplay and humour.

Read this first!

Before I go any further, I'd like you to bear with me as I rave about this game just a little more. Until Simon's release, Flashback would have had my vote for the single best Acorn game, but suffice it to say, that in two weeks since the show, I've spent some 15 minutes playing Flashback, to about 15 hours on Simon. (OK, maybe that's a slight exaggeration, but you get the point.) What's more, the game will appeal to more than just adventure fanatics, because it has that basic element missing in so many games – FUN.

Back to basics

Right, so we know that this game is good, but what's it all about? OK, we start with a puppy, just an ordinary puppy, and we place a dusty old book in his mouth. Said dog is then received into the home of 12 year old lad, Simon (aha!). The aforementioned grimoire is then dumped in an attic, until puppy retrieves it. Suddenly, and at this point we get by with some fancy special effects, Simon (and puppy) are dumped unceremoniously into another dimension via the pages of this magic libram.

Upon reading a handy note, it turns out that you [Simon] were selected from millions of hopeful candidates to save the local wizard Calypso, and knock the evil Sordid to kingdom come. All in a day's work for a 12 year old cockney? Perhaps, but not when Dial-a-Pizza don't deliver to your dimension!

Style

Unlike traditional adventures, absolutely no keyboard skills are required to play. Indeed, the entire game is played with just twelve verbs displayed in the lower third of the screen. All you do is point and click, then select the appropriate objects. Initially, this approach worried me – after all, how was I to communicate all the detailed commands if all I could do was click on buttons? However, as I moved Simon around the beautifully drawn rooms, opening doors, cutting off beards (clue there!), and generally getting in the way, all my apprehensions fell away.

It's hard to describe the quality of the graphics, they are *so* attractive, but there certainly isn't space for a full screenshot. As for the music, after playing the game once, I couldn't stop humming the tunes.

Humour

This style of graphic adventure has always been associated with humour, right from the days of Monkey Island and its sequel, Le Chuck's Revenge on the Amiga. However, the big problem with these games was that their American origin meant that most people simply didn't understand half the jokes. Since Simon (the game, not the character!) originated in Birmingham, this is not a problem. Indeed, many of the situations are reworkings of popular english fairy tales and nursery rhymes.

Take the classic story Billy Goats Gruff, for example. As we all know, the troll had problems catching the goats, but this time he's hungry, and er.... on strike?

Conclusions

Simon the Sorcerer represents the best *waste* of 8Mb of disc space I can possibly imagine (I say 'waste', because Publisher et al eats up similar amounts and are perhaps a tad more useful?!?). What's more it can be played off floppy, and even comes with a special VGA mode. My advice: BUY IT NOW – £39.95 from Gamesware or £38 through Archive. A

PD Column

David Holden

Another takeover

One of the newer PD libraries, Gem PD, has just been taken over by The Datafile. The main reason for this was that the people who ran Gem were due to start college in the near future and were therefore unable to continue to operate the library.

Although perhaps not as well known as some of the older libraries, Gem has, in its comparatively short life, earned a good reputation, so I'm pleased that its customers will now be looked after by the Datafile.

Second Datafile PD CD

Further news from The DataFile. Their second CD of PD programs was unveiled at Acorn World 94. This is much better than the first, which appeared a few months ago. Not only does it contain more material, and almost all of it Risc PC compatible, but it is all archived. This hasn't been done to save space as the CD is certainly not full, but to avoid the long delays that occur when the filer opens a directory full of applications and then reads all the !Boot and !Sprites files. As the applications are archived, these files are only read when an individual archive is opened, which makes things very much faster without recourse to any special software. A secondary advantage is that it is very much quicker to copy an archive, which is only a single file, than an application, which normally consists of many files.

The price of the second Datafile PD CD is £33. Although this is more expensive than the first, it contains more material and comes with a small booklet with a short description of each program.

Clipart CD

I've been saying for some time that APDL would be releasing a CD 'soon' and it is now in production. It contains over 9,000 files totalling around 500Mb. Most of this is clipart and artwork suitable for use in DTP work and general illustration, but there are also around 580 pictures, mostly 256 colour, covering a wide range of subjects. All of the material is in either sprite, drawfile or Artworks format.

Although it will be of interest to anyone who uses any type of clipart, it will be of particular benefit to schools, and most schools will be entitled to a *free* network licence.

The CD is produced by APDL but most of the work in compiling, selecting and 'tidying up' the material was done by Alan Wilburn, who may be recognised by readers as an Archive contributor.

The normal price will be £28 but as a special Christmas offer to Archive readers it will cost only £25 if you order before 31st December 1994 from either APDL or Archive.

Adventure games

A few new text adventure games have appeared recently, notably Ashkeva Alyedin from Andrew Flintham. There seems to be a trend away from shoot-em-up's and towards more cerebral pursuits, or is that just wishful thinking on my part? Anyway, this month's special offer disc will be full of adventure games. At the time of writing, I don't know what I will put on the disc but it will, as usual, be full.

A lot of readers have already responded to my offer of a disc of seasonal clipart, and because there will still be a couple of weeks to Christmas by the time this appears in print, I will bend my usual 'one month only' rule and extend the offer for a further month for those who forgot to send for the disc last month or are new subscribers.

Either disc will, as usual, cost just £1 (cheque or stamps) from the APDL address inside the back cover. A

RISC OS 3

Turbo DRIVERS

VERSION 4

...more Drivers

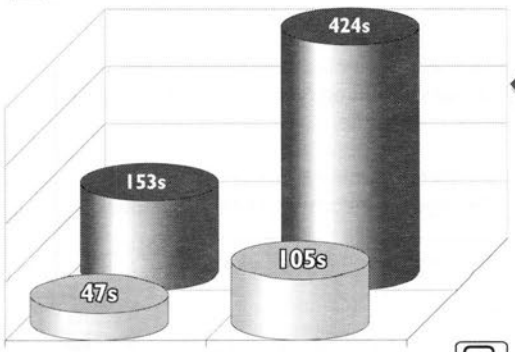
The TurboDrivers have been extended to support new printers, including the Epson Stylus Colour and to be compatible with the latest versions of Acorn !Printers and the RiscPC.

...more Turbo!

In the simplest cases, printing single copies of black and white documents, with little or no graphics, the TurboDrivers give performance gains of twice or more. However, for more complex documents, or multiple copies, or for colour documents the gains can be even more spectacular.

Our tests show that when printing two copies of a typical 3 page document, containing a good mix of font styles, Draw and Sprite graphics, TurboDrivers can give control back up to ten times sooner than the Acorn drivers.

Risc PC TurboDriver timings



The graph shows the spectacular performance gains that are possible using TurboDrivers. These comparisons are made using the latest versions of !Printers, with a fairly complex single page DTP document (!MicroScope) on a colour inkjet and show that even on a Risc PC, the TurboDrivers can dramatically improve your printing performance.

These tests are done with the Acorn drivers in 'background' mode (the new 'faster' way to get control back). When using the Acorn drivers in 'normal' mode the differences are even greater. The speed gains apply both to the older Acorn range and the Risc PC computers.

With the availability of new reasonable cost colour inkjet printers, and the increasing use of colour in printed documents, there is now even more reason to use TurboDrivers than ever before.

TurboDrivers Canon - £49 + VAT (£57.57 inc)
TurboDrivers HP - £49 + VAT (£57.57 inc)
TurboDrivers Epson - £49 + VAT (£57.57 inc)

Version 4 drivers require Risc OS 3.1 or later. 2 MByte RAM and hard disc recommended. Please state printer type when ordering.

Computer Concepts Ltd

Gaddesden Place, Hemel Hempstead, Herts, HP2 6EX Tel 01442 63933 Fax 01422 231632
Email info@cconcepts.co.uk

BLINDS

Blinds is a revolutionary and sophisticated 'Pinboard' type application which has been developed to help make life a lot more effortlessly when using your computer.

Professional users demand that a program must be easy to use, but with the necessary **power** to make their life easier and more productive. We believe we have achieved this goal with *Blinds*.

- With *Blinds* you can make windows (or blinds) any shape, size and position them exactly where they will appear every time.
- Group your applications, letters, files, directory icons, etc. onto blinds which open and close at the click of a mouse button, therefore taking up virtually **no** valuable desktop space.
- You can give these icons long meaningful names, like "Letter from my Bank Manager"!
- Change the icon displayed by choosing from over one thousand icons provided.

- Set the blinds to open automatically whenever your favourite application is loaded. You'll probably never have to look for that elusive file again!
- Make a blind which will attach itself to your favourite application, it will then follow your applications window around the desktop just like it was made for it!
- And of course if you own our other popular product, *Keystroke*, you'll find that *Blinds* is fully integrated with it and you can make your own buttonbar for any application.

For an introductory period *Blinds* will only cost £19.95 fully inclusive of postage, etc. No V.A.T. and it is available from all good Acorn software dealers including Norwich Computer Services. Site Licences are available and educational orders are welcome.

Please note that *Blinds* requires any Acorn Risc computer running Risc OS 3.10 or better. Quantum Software has been established since 1992 and are Acorn registered developers.

A demonstration disc is also available free of charge from us on receipt of a S.A.E.

Or if you prefer you can order directly from us, Quantum Software, at :
35 Pinewood Park, Livingston, EH54 8NN, Scotland. Tel : 01506 - 411162

REGISTERED DEVELOPER

NCS Technical Services

Paul Beverley

The technical service that NCS / Archive has offered over the years have been greatly appreciated by many people. We are always keen to give the best support we can and, within this article, I want to tell you about some changes that we are currently making.

The history

At first, we had time to deal with all the technical queries that came up – people just rang us and we tried to help. As the user-base grew, it soon became clear that there were just too many calls for our engineers to handle and, as it was a free service, it could not be justified on a purely commercial basis.

Enter "THS"

We set up the Technical Help Service so that Archive subscribers could pay an extra £15 a year for the privilege of being able to telephone the NCS office with technical queries. Other people could send in written queries but obviously they didn't have the advantage of being talked through their problems over the phone – flying doctor style!

As the THS became more frequently used, we found it was clogging up the main phone line and stopping sales enquiries – and we didn't want to inhibit that particular activity! So we installed a special phone line whose number was only released to THS subscribers.

Enter the recession

Even though the effects of the recession were beginning to bite at NCS, we tried to maintain the sort of service we felt was appropriate. We have always tried to work on the basis of... "If I were buying a computer or some peripherals, what service would I want from the company supplying it?"

Until recently, we have maintained a level of engineering staff such that we could provide the following technical services:

a) THS telephone support *(£15 per year)* – any technical query to do with Acorn computers and peripherals.

b) Telephone sales support *(free)* – e.g. "Which is the best CD-ROM drive to buy?"

c) Telephone after-sales service *(free)* – e.g. "I've bought a disc drive and I can't work out how to fit it in my computer."

d) Written sales support *(free)*

e) Written technical questions *(free)*

f) Written after-sales service *(free)*

The problem

Over a period of time, certain companies having developed a policy of selling Acorn computers, peripherals and software at bigger and bigger discounts. I have commented on this policy in the past and said that it is very short-sighted.

At NCS, we are finding, more and more, that people come to us because of our reputation for giving unbiased advice and ask, e.g. "Which is the best CD-ROM drive to buy?" But then they find that Xxx Ltd sells the same CD-ROM at £20 less than NCS. Well, £20 is £20 and, in a time of recession, we are all looking to save money, aren't we? So they buy it from Xxx Ltd. The result? NCS is not earning enough to maintain the level of staffing that I feel is ideal.

Now that Dave Webb has moved down to Bath, I do not feel able to replace him with a full-time member of staff. Instead, I am seeking part-time help and, at the same time, cutting some of the services NCS provides.

I very much regret reducing the standard of service but, sadly, I have to make decisions on purely commercial terms. Gone are the days when I could afford to be altruistic in my decision-making.

However, Archive does have a resource that is not available to any other Acorn dealer – i.e. you! Let me explain how the services are going to change and then explain how you could help...

Sales advice stays

We are keeping the free telephone sales advice but we would ask, please, that you do not misuse it. By

all means, if you know what you want to buy, get it from the cheapest source, but do you think it is fair to ask us to spend time helping you through your decision-making and then go off and buy it elsewhere? If you want the cheapest prices, please ring up one of the 'box-shifters' and ask them for advice.

Farewell THS

The THS has been suspended and credit notes sent to all those with outstanding subscriptions. To make it commercially viable, we would have had to charge more like £50 a year – and that just isn't worth it for most of you, I guess.

Written technical help

Please continue to send us your technical queries by letter, e-mail or via the Archive bulletin board on 0603-766585. However, we will respond to your question(s) in a number of different ways depending on the nature of the query.

a) If the answer to your question is likely to be of interest to other readers, we will write it up and put it in the next issue of Archive. However, you won't have to wait for the magazine, as we will send you a copy of our reply as soon as it is written.

b) If the question is one which has been dealt with in earlier issues of Archive, we will have a proforma letter on which we will note the relevant references. (Back issue sets are still available – volumes 4 to 7 inclusive for £23.)

c) If your area of interest is one which is covered by one of the specialist Columns in Archive, e.g. Multimedia, Pocket Books, Risc PC, etc, we will send your letter on to the relevant editor to see if they can help. *(Note to editors: If at any time, you feel uneasy about the amount of time you are spending on responding to queries, please let me know straight away and I will see if I can find someone else who could take over or offer you some help. Also, if you have out-of-pocket expenses that you would like covering, such as postage, stationery, etc, just send in a note of how much you have spent and I will reimburse you. Thanks. Ed.)*

d) If your question is a more general one, Gerald Fitton has said that he would try to answer it and/or find someone else who could answer it. Perhaps Gerald could set up a database of Archive expertise? (This is where I say that Archive has the edge because it has you, the readers, as a resource to provide help to other readers.) If you have views on this suggestion and/or want to offer to answer questions about any particular subject(s) please write either to us or direct to Gerald at Abacus Training.

Helping the Technical Helpers!

If you want to help those who are offering technical help, please avoid asking several questions about different areas at once. I'm sure that, with the wonders of modern word-processing, you could produce a number of letters instead of one, each letter dealing with a different topic. If you did, it would certainly avoid us having to photocopy your letter and circle and cross out various bits of it before sending it on to different helpers.

Another way of helping is to provide an SAE for each letter. It's not just the cost of the stamp and the envelope but the convenience of just scribbling an answer on a piece of paper and popping it into the ready-made envelope and putting it into the post-box. (There's no need to bother with an SAE if you are just writing to NCS – it's the helpers that I want to help because they do it for love!!)

Also, it can often be a great help to send your letter on disc as well as on paper – and, perhaps, send some example file(s) to make the problem easier to solve. The point of sending the letter on disc, as well as on paper, is that it saves typing out bits of the letter if we want to use it in the magazine.

What happens to the discs? The NCS procedure is that if you send in an article or a substantial hint or comment, we send the disc back, when the magazine is ready, with a copy of that month's magazine disc as a small 'thank you'. Otherwise, and this is what I think is reasonable for the volunteer helpers to do, unless the disc is accompanied by a stamped addressed sticky label or a suitable SAE'd paddibag, we would re-format the disc and use it as a 'charity sale' disc or to send something on to someone else. (Some contributors specifically write on their discs 'do not return' so they go straight to the charity sale.)

Free hard disc installation

Another consequence of the changes in our Techni-

cal Services brings a distinct an advantage for you... If you are buying an internal hard disc, we have decided to offer free collection and installation. The reasoning behind this is that there are so many complications which can arise when fitting an internal hard drive, that it is cheaper to pay a carrier to collect your computer, fit the drive and return it to you than have an engineer spend ages on the phone trying to help you work out why the drive won't work with your particular setup.

NCS – The future?

Our aim has always been to give the best service we can to customers and this has, in some ways (mostly financial!) worked against us. However, we will do what we can to maintain that quality of service whilst still staying financially viable. I, personally, appreciate the support and loyalty of the NCS customers. I'm grateful to those of you who have continued to buy through NCS even when you suspected that there was a 'box-shifter' who would 'do it cheaper', and I'm grateful to the hundreds of you who have contributed in one way or other to the magazine. I hope that the new arrangements in NCS Technical Services will prove to be of benefit in the long-term.

Thanks again for all your support. All of us at NCS enjoy what we do and we hope we can continue to supply your computing needs in the future, whether it is hardware, software or information. A

Earth Warp

Robert Lytton

The program is based on the BBC's Look and Read, Earth Warp series for 7-9 year olds. The series is good, the content is relevant and the presentation fun, although I wish they had not changed Wordy for Zot, an american mechanised meatball. There have been some poor Look and Read series but Earth Warp will be used year after year after year... The program does not follow the television story-line but the situation and the characters are the same. Their personalities also come over as being the same.

What you will receive

You will receive a 30 page A4 booklet and an unprotected disc, so the program may be copied onto a hard disc. The booklet is very well written with an introduction for teachers, a synopsis of the story-line for children and a section on how to get started. The bulk of the booklet contains detailed descriptions for each "chapter" with quality extension ideas for the teacher to consider. At the back (not to be forgotten) is the, soon to be obsolete, "been there done that", list of National Curriculum Statements of Attainment!

Description of the program

The first thing you will notice from "Getting started" is that the program is also available for the BBC B, B+ and Master. I asked Longman about these versions and the prices are the same. The Archimedes version does make use of the superior graphics (it is not run under emulation!) but apart from the graphic detail, the programs are identical.

When you double click on the Earth Warp icon, the program takes over the machine and gives you a short opening sequence with the familiar Earth Warp theme tune. You are given the opportunity to turn off any further sound, although this is minimal. You are also given the chance to jump past the introduction which involves a familiarisation routine, where you are encouraged to press the space bar, and a short introduction is given to the story. The controls are very simple from the keyboard or mouse and it is usually a case of choosing items from a list. The main body of the program is broken down into twelve problem solving chapters. These may be visited in any order, although it is worth keeping to the story-line. If you press <escape> at any time, you are returned to a menu, allowing you to revisit chapters if they were not completed or to resume to a set point at a later date. The overall structure of the program is consistent and intuitive. The children do not find the program a hindrance, only what they are asked to puzzle through.

Chapter contents

There are twelve chapters varying in the degree of skill, knowledge and information needed. Where appropriate, Easy and Hard option are offered. The activities are of an applied nature for consolidation, which does mean you need to cover the ideas and material in the classroom before sitting a child in front of the screen! All the activities are worthwhile and there are well thought through extension ideas you can try in the classroom. I found these extension ideas practical and helpful and used a lot of them.

- *How long in space?:* You have to find a number between 1 and 15. Children should develop a strategy of logical deduction.
- *Word Search:* A 7×7 word search on space.
- *Cleaning the beach:* You need to pick up rubbish using co-ordinates. Either letters and numbers, or just numbers.
- *Crossing the river:* Follow the colour sequence on the stepping stones to cross over. The extension ideas cover other sequences and mathematical patterns.
- *Ollie's lost Orb:* This is a simple dungeons and dragons type adventure where you can select from a list of options. You are not given a plan but I gave the children a blank plan to fill in with details as they saw fit. As well as solving problems and ordering your moves, you need to finish off the patterns on symmetrical door locks. The task seems daunting at first but it is not necessary for the player to specify how to solve the problems. If the right object has been taken to the right place, the computer reports on how the problem was solved.
- *Repairing Ollie's spacecraft:* Two problems to solve, what should it look like and how to rearrange the pieces. At first it seem impossible to do but you quickly realise that you need to choose the top pieces first.
- *Mending Ollie's communicator:* Match eight words up to make four compound words.
- *Guiding Ellie:* Using a compass marked off in 30° intervals drawn on the screen you need to direct Ellie from solar system to solar system – or is it planet to planet?
- *Homing in on Earth:* A diagrammatic picture of our solar system. Shuffle the planet names from box to box to get the names in the right places.
- *Which is Earth?:* Ellie gives you a report on a planet's surface, you need to decide which planet it describes. If you choose incorrectly you are given a report for your chosen planet, to help you distinguish them apart. Ellie's report and your correction report are different, to keep you thinking. I found the surface descriptions very interesting and they certainly encouraged conversation.
- *Race against time:* A race against time to solve anagrams.
- *All right:* No matter how many times you ask, children still bring you work to look at and read when they have not even read it themselves! Will this exercise help? I hope so. They are given a newspaper story written by Jenny for correction. This task is not easy but the computer can help by finding the words for you and even giving you the answer if they get it wrong twice. Good practice for using spell checkers I'm sure!

Conclusion

I liked the program very much. It is well presented with a host of interesting thing to do on the computer and away from it. I used it with some 7-8 year olds and they enjoyed it and coped well with the activities. The extension ideas were sensible and not there for the sake of it. However, you do need to spend time to make it all fit together and work. If you are watching the Earth Warp television series and possibly Music Time's Planets series and have been allocated the science unit "The Earth and beyond", buy it and make a mini topic out of it. I personally am not sure if I will find the time to it justice but if I do, I will definitely buy the BBC B version. If you are like me, your Archimedes is already working flat out on statistical and DTP or multimedia projects and you may have one or two BBCs asking for a job like this to do.

Earth Warp costs £24 (+VAT +p&p) from Longman Logotron or £27 through Archive. A

Programming Workshop – Part 1

Matthew Hunter, NCS

One of the comments that repeatedly occurred in the recent Archive questionnaires was a wish for more articles about programming, particularly with regard to the wimp. Many technical help calls and letters have also been about programming in some form or another. It therefore makes sense to bring all these together into one shared resource, which is what this column aims to be. Unlike previous wimp programming articles, I am not aiming to show you how to write an entire application. It is an unfortunate truth that any example application would fail to implement the one piece of code that you need to finish your masterpiece! Instead, I will try to pool ideas and solutions. If you want a piece of code to do a particular task then write in, or if you have a solution for an unanswered problem, or a better solution than one which has already been offered, or indeed a solution to a problem that has not yet been asked then please send that in too. This then means that the content and the level will be determined by you, the reader.

It is not intended that this should be an 'experts only' column, I will try to answer any queries appropriately, trying not to assume too much. In an effort to reduce duplication, I will refer back to previous issues. One assumption I will make is that you are using RISC OS 3, because it is the current version of the operating system and therefore essential for serious use of your computer. All references given will be to the RISC OS 3 PRMs.

Languages

I do not mind which language you use although I would prefer Basic or C, as I use those most regularly. Any solutions should, where possible, be generic. If it is written in Basic then try to ensure that it is easy for someone to follow, so that others can use it in C/Fortran/Pascal or whatever they wish. Feel free to use 'phantom' procedures if they make something clearer. For example, use the 'setcolour' procedure from my graphics articles (8.1 p75) rather than explicitly calling ColourTrans. Over a period of time, there will be a library of such procedures, making new solutions easier. If you are reading an article and find that you do not understand an undefined procedure then, again, write in and all will (hopefully!) be explained.

New to programming?

For those of you who are new to Acorn RISC machines or have not previously programmed them, you may not realise just how easy it is to get started. If there are people who are interested, we may do an "Introduction to Programming" series. Please let us know if you would be interested in such a column.

Just to prove the point, try the following: Load the !Edit application from Applications Disc 1 or your hard drive as appropriate. Click <menu> over the iconbar icon, slide off over the 'Create' submenu, and choose 'BASIC'. A new window will open. Into it type:

```
PRINT "Hello World"
END
```

Then save the file as normal. You will see that it has a blue and white (Basic program) icon, rather than the usual black and white one generated by !Edit. Double click on the file in the directory and you will see the results. You have just written and run a Basic program!

Large text

I have had several queries recently regarding large text, when using the system font. This can be useful for display purposes, titles and so on, or for compensating for the small text size in large desktop area screen modes. There is a VDU sequence which controls character sizes but, unfortunately, it only works when the computer is plotting text at the graphics cursor. For this program, I will assume that you already have "PROCModeInfo" defined, as given in Archive 8.1, page 75 (and on this month's program disc), which must have been called before the procedures given here.

```
DEF PROCInitGraphicText
VDU 5
MOVE 0,Mode_LogicalY%-1
PROCScaleText(1,1)
ENDPROC
```

This first procedure simply sets the text 'printing' (that is, 'printing' to the screen, not to paper) to graphics mode (VDU5) and moves the graphics cursor to the top left corner. Unlike standard text printing which starts top left, graphics co-ordinates start at the bottom right.

```
DEF PROCSetTextSize(xs%,ys%)
BigText_X%=xs%
BigText_Y%=ys%
VDU 23,17,7,6,xs%;ys%;0,0
ENDPROC
```

This sets the size and spacing of the text to xs% pixels wide, and ys% pixels high, and gives an easier access than trying to remember all the numbers every time you need it. Another useful variant is:

```
DEF PROCScaleText(xsc%,ysc%)
BigText_X%=xsc%*8
BigText_Y%=ysc%*8
VDU 23,17,7,6,BigText_X%;BigText_Y%;0,0
ENDPROC
```

This sets the text size relative to the default size of 8 by 8 pixels, so for example, to get double height text use PROCScaleText(1,2)

One problem with graphics text printing, compared to standard text printing, is that you reference the positions on the screen differently. Also, the background is not cleared before text is printed, resulting in a mess if you try and to overwrite previous text.

```
DEF PROCTabText(x%,y%,t$)
LOCAL sx%,sy%
sx%=(x%*BigText_X%)<<Mode_EX%
sy%=(Mode_LogicalY%-1)-((y%*BigText_Y%)
                                <<Mode_EY%)
MOVE sx%,sy%
PRINT t$
ENDPROC
```

This acts like a PRINTTAB command, the text t$ will be indented x% characters from the left edge, and y% characters from the top edge, based on the current size of the characters. The x position (sx%) is calculated by multiplying the number of characters to indent (x%) and the width of each character in pixels (BigText_X%), and this is then shifted by Mode_EX% – as supplied by PROCModeInfo – which is the mapping from pixels to screen co-ordinates. The y position (sy%) is slightly more complicated, since it is necessary to move the text, down from the top of the screen.

```
DEF PROCClearWindow(l%,t%,r%,b%)
LOCAL x%,y%,w%,h%
x%=(l%*BigText_X%)<<Mode_EX%
y%=(Mode_LogicalY%-1)-((b%*BigText_Y%)
                                <<Mode_EY%)
w%=((r%-l%)*BigText_X%)<<Mode_EX%
h%=((b%-t%)*BigText_Y%)<<Mode_EY%
RECTANGLE FILL x%,y%,w%,h%
ENDPROC
```

This will blank out an area of the screen. Note that all text, and the area blanked, will use the current graphics foreground colour, so remember to set it before use. There is a short program on the monthly disc which includes all these procedures and demonstrates their use. **A**

Small Ads

(Small ads for **Acorn computers** *and related products are free for subscribers but we reserve the right to publish all, part or none of the material you send, as we think fit. i.e. some people don't know what 'small' means and there are certain things, as you can imagine, that we would not be prepared to advertise as a matter of principle. Sending small ads (especially long ones!) on disc is helpful but not essential. Ed)*

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• **CC Turbo Driver** for Hewlett Packard £25. ExpLAN Event desktop diary (unregistered); £18. Phone 0131-447-8624.

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• **Scanlight 256** inc. latest software. A300/400/5000 version (not Risc PC) £75. Phone 01302-744005. A

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The following items are available for sale in aid of charity. PLEASE do not just send money – ring us on 01603-766592 to check if the items are still available. Thank you.

N.B. These items are sold AS SEEN (even though you can't see them!), i.e. we are not able to give refunds if the items are not suitable for your computer or whatever. All the money paid goes straight to charity therefore NCS cannot be involved in correspondence etc over these items. If it turns out to be no good for you but might do for someone else, please send it back with a note and we will sell it again with the proviso you state, e.g. "It doesn't work on a Risc PC."

Software: MahJongg (Simtron) £5, Archway £10, Leading Edge Midi Tracker £4, Pysanki £2, Rotor £2, Datavision database £6, Autograph (Maths teaching) £15, Boogie Buggie £3, Colour Fun £3,

Impression Business Supplement £5, Chuck Rock £5, Populous £8.

Hardware: CJE 5¼" interface £5, 3-way parallel printer port switch and some cables £10, Acorn Ethernet interface (A5000) £50, external 5¼" floppy drive £25, Joystick Interface (Serial Port) £8.

(If you have unwanted software or hardware for Archimedes computers that you could donate in aid of charity, please send it to the Archive office. If you have larger items where post would be expensive, just send us details of the item(s) and how the purchaser can get hold of them.) A

UK School Internet Primer

Andrew Rawnsley

There has been much hype about the Internet recently, particularly in the daily press. To read many of their articles, you would think it was a recent innovation, but this impression is very wrong. The Internet Primer from Koeksuster Publications aims to cut through much of this uninformed publicity, and to introduce the reader to a little of what's available, and how it can be of use. Although the book is targeted at the educational establishment, it has much to offer the interested third party.

Getting going

This book certainly isn't a definitive work, but then this is not what the author ever intended, and that market has been cornered by various American volumes, usually retailing at £30+. The Internet Primer gives a British perspective to this ever-expanding bank of information. Advice is given on what hardware you need to get going, and a list of service providers is included to help you decide which best suits your needs. This is just the kind of information required by anyone interested in Internet connection.

What's available

Much of the book is dedicated to what the Internet actually offers. There is a discussion of the advantages of e-mail, newsgroups, file transfer and the World Wide Web (WWW). Newsgroups are given particular attention, and the author recommends some useful groups to read. Other 'alternative' groups are mentioned to show the diversity of material available, e.g. *alt.nuke.the.USA* – I'll leave that to your imagination.

The author takes common Internet criticisms, such as the content of some alternative newsgroups, and strips away the media hype, giving a much clearer understanding of what to watch out for, e.g. 'flame wars'. These are Internet arguments which can develop into personal abuse. These often start with the 'my computer's better than yours' syndrome. The author then explains how such messages can be avoided by selecting users whose messages you don't want to read and putting them in a 'kill file'.

Comments and criticisms

It is hard to criticise the book – it certainly clarified a lot of things in my mind. However, it is rather platform independent, in that it avoids naming particular packages that are good at particular jobs on different computer makes. All the screenshots are taken from the Macintosh, and are often from this version of NCSA Mosaic – the most popular WWW browser. Personally, I would have preferred some appendices containing machine specific material and advice. On the other hand, a note supplied with the book indicated that a selection of machine-specific books could follow, building on the material contained within this first volume.

Conclusions

Retailing at £8.50, the UK School Internet Primer is an essential purchase for all schools trying to bring themselves into the 21st century. It is very easy to read, and clearly explains the education potential of this huge resource. I would also recommend the book to anyone who is considering obtaining an Internet connection – it offers much useful advice, and you'll be able to get going quickly should you decide to go ahead. It certainly saves all the fumbling around so often connected with computer communications.

The UK School Internet Primer is available through Archive for £9 inc p&p. A

Avie Electronics would like to wish all Archive readers a very merry Christmas and a Happy New Year.

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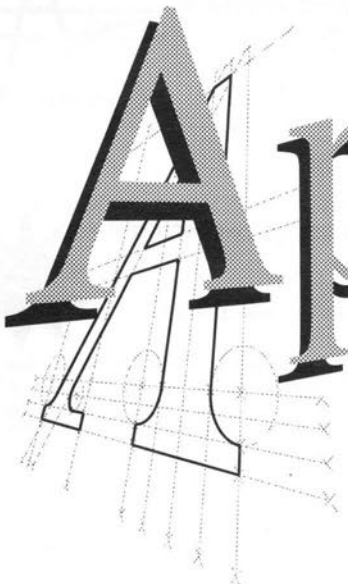

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Around the World in 80 Days

Richard Rymarz

Now, how about an adventure story written for 9, 10 and 11 year olds that has a story line to grab their attention; provide a whole succession of geographical tasks; give them apparent deadlines; and provide endless opportunities for teachers to broaden learning opportunities beyond the computer.

Having read the opening comments from the teacher's booklet from Sherston's 'Around the World in 80 Days', I was looking forward to encountering all these aims with the prospect of a major topic on journeys as part of this autumn's curriculum for my group of upper junior children.

The package

Certainly, the package looks impressive. There are four discs, three of which provide the program and one which is filled with picture resources; a user guide which supplies all the information needed for lazy adults who cannot manage the adventure themselves (absolutely essential); a book full of classroom ideas ranging across all areas of the curriculum; a list of books, fiction and non-fiction and a comprehensive catalogue of organisations to contact such as foreign embassies, trusts and museums; four double-sided A4 maps including the British Isles, Europe, the Americas and the World; and finally, a set of ten A5 worksheets that cover a whole span of geographical skills such as the 24hr clock, 4- and 6-digit grid references, time tables, contour lines and latitude and longitude. Finally, there is a daily log to keep track of the journey and a glossary of 15 words that the children may find new. To be fair, they are brilliant and an excellent example of resources that busy teachers need in order to make the planning of a topic easy, well organised and progressive.

The plot

A reasonable introduction to the program would be a reading of Joules Verne's famous story of the same name (even the old film or the cartoon version would be an asset). The central theme follows the famous journey by Phileas Fogg. In fact, the two heroes of the adventure are related to the famous adventurer. The plot involves the saving of an area of outstanding natural beauty which is being threatened by Wiley Windbag, a ruthless property speculator. Freddy and Francis Fogg camp out on the reserve and refuse to move. Angered by the children's interference, Wiley throws down a challenge: if the twins can succeed in circum-navigating the world in 80 days, just as their ancestor did, without using mechanical air transport, not only will he stop his development plans, he will give £500,000 towards ensuring its preservation. Of course, Wiley plans to do his best to thwart the twins. This provides immediate empathy with the children taking part in the adventure. There is an obvious objective, there is a 'baddie' and there is a challenge. The two 12 yr olds that I use to test the programs I review, couldn't wait to get started.

The program

The program installs itself onto hard disc although Disc 1 is needed when beginning the adventure. A hot air balloon appears on the iconbar where clicking <menu> accesses the set-up screen. Here positions can be saved, volume control altered, reading speed changed and start-up position chosen.

Clicking on the balloon with <select> results in the whole screen being taken over by the title followed by a picture of 'Sleepy Hollow', the threatened area of beauty. Sampled sounds of bird song are heard and everything looks idyllic. Getting back to the desktop is simply a matter of pressing <ctrl-Q> and returning to the adventure just needs a click on the balloon – all very simple.

After setting the scene, the journey begins at the Reform Club where the twins set off by taxi to the station. Immediately, they are tricked by Wiley who leaves them in a taxi well away from the station. Using maps and symbols the children 'drive' the car to the station using left, right, straight on and so on. They arrive just in time to board the 'Orient Express' that will take them to Venice (some poetic licence here but does it really matter?). Whilst on the train, the children have to read a simple timetable and have to piece together a map of Europe that the dastardly Wiley has torn to shreds. They reach

Dover and, since they have time to spare, they place the names of Europe on the map, make sure they know the capital cities of the European countries and mark the first stages of their route across Europe. All this happens on Day 1 and, to finish the day, the twins discover their passports and money have been stolen. This delays them in Boulogne for three days. Eventually, the British Embassy helps them out and, having seen Paris at night, they find themselves by day 5 in Switzerland.

The journey progresses in similar vein for the next 75 days with Wiley doing his best to stop the children succeeding. There are further adventures including being hijacked by terrorists. At the end, the children not only succeed in completing their journey in 80 days but they also manage to put Wiley behind bars. Sleepy Hollow, of course, remains safe.

Conclusions

'Around the World in 80 Days' does work. It kept my testers happy for nearly two hours and they had no word of criticism. How much they learned, I wouldn't like to hazard a guess, but I am sure that, with the aid of the worksheets, children will gain a great deal of knowledge from the adventure. The graphics are not great but are quite adequate. There is some simple animation, and sound effects add to the atmosphere. Conversation is through the medium of speech bubbles which the children are quite familiar with through their own reading experiences. Altogether, there are 63 different starting positions and the number of problems the children have to face is considerable. This adventure will take some time to complete and, with the backup teaching that is needed to ensure understanding, there is enough here to keep a class going for many weeks. If use is made of even a small number of the follow up suggestions in the teachers book, there is enough to keep a class busy for a term.

At £39.95 +VAT for a single user version (£44 through Archive) and with site licences available, this will provide a resource that will stand the test of time. Recommended. A

Hints and Tips

• **Risc PC monitor configuration** – One of the biggest problems people have had with the Risc PC is finding that their machine will not drive the monitor correctly, either because they are using a non-standard monitor, or they have accidentally configured the machine incorrectly. The !Mon application aims to rescue you from this situation.

The program has a number of local monitor definition files, which it will try in turn. One of them should give a usable display on your monitor, after which you should set up your machine again so that the configuration is correct.

In order to use the program, you will need to do the following, typing blind where necessary:

a) Turn on the computer and wait for it to finish booting up (wait until the hard disc activity stops).

b) Insert the program disc into the floppy drive.

c) Press <f12>.

d) type "adfs" and press <return>.

e) type "mount 0" and press <return>.

f) type "start" and press <return>.

This will start the program and try the first monitor definition file AKF11/12 which will not work on the AKF60's/85's supplied with the Risc PC, but it is better to try this one first than a high end monitor definition file which could damage a TV resolution monitor. You can cycle through the available monitors by pressing <space>. Alternatively you can jump to any of the files by pressing the appropriate number key, the most useful are 4 (AKF60) and 5(AKF85). When the program loads a new monitor definition file it will pause for two seconds, to give the monitor time to catch up, and then beep. If you have a stable picture , press <y> to finish, followed by <return> to get back to the desktop. Note that this will not reconfigure your machine – if you switch off without reconfiguring, you will have the same problems next time – but it will get you a working system. This program is on the monthly program disc. **Matthew Hunter, NCS.** A

Eagle M2 — *soaring* to great heights

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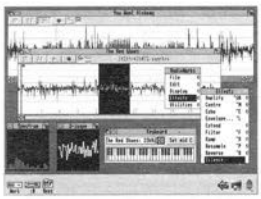

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Gerald's Column

Gerald Fitton

My December 1994 Archive arrived only a few days ago and yet I've already received many letters relating to it. You reinforce the views expressed last month, namely that you approve of the broader base of topics for this column.

Knowing that you like the new column I must risk causing some of you a measure of disappointment by postponing the article I drafted for this month in order to give coverage to some of the other topics about which you've written to me.

This month, I shall explain how saving your sprites in unusual modes might cause you problems in the future when you upgrade your operating system. The subject of cross checks in spreadsheets has arisen in many letters and I have a further point to make on this topic.

Acorn World 94

At Acorn World 94, I detected a renewed faith (I use the word rather than 'interest') in Acorn products on the part of "the average user". In the discussions I had with those of you who came and chatted to Jill and me on the Colton Software stand, this renewal of faith came across most strongly.

The message I received from many of you at Harrogate in the spring was that you were wondering if Acorn was on the way out and you were seriously thinking of defecting to the PC world! At Harrogate, because of those doubts, you didn't spend much. However, at Wembley, those doubts and fears were gone. Nearly all the stand holders that I spoke to reported substantially increased takings.

One possible reason for your increased faith is that Acorn priced the Risc PC lower than I (and many others) thought that they would. Even if you are one of those not interested or not able to buy a Risc PC yet, the combination of the specification and price encourages you to believe that Acorn will survive and maybe become an important force in the world of computers. For my own part, I see the Set Top Box as an interesting development which will create volume for Acorn's Risc PC components and hence guarantee the future of this type of computer.

Software

I found that, on the stands, in contrast to your optimism, many suppliers of software (and hardware) were most pessimistic in spite of the increase in their takings! The strongest position expressed to me personally (and I must make clear that this was not from anyone at Colton Software) was that their company would build up a PC market for its products and, when that becomes sufficiently viable, they would get out of the Acorn market all together. I can see sense in separating the two operations (Acorn and PC markets) and then, maybe later, selling off the Acorn part of the business as a going concern. Expressing a wish to drop out completely from the Acorn market sounds to me more like disenchantment than a sound business strategy.

As an aside, let me say that, although it is early days yet, Jill and I have not sold a single subscription to FireLine. FireLine is our user group for users of Fireworkz for Windows (i.e. on a PC). We have put FireLine on hold until some time next year.

In the Archive DTP column, 8.3 p58, Mark Howe says "I have observed a change in CC's approach to customer service... ". He goes on to say "Impression 2.19 was far from bug free... yet no upgrade or bug fix was made available... (until) several months later". Let me tell Mark (and all of you) that Computer Concepts are not the only software company who have hardened their hearts towards issuing a multiplicity of free upgrades. Previously, in this column, I have said that V 1.07 is the most recent version of Fireworkz; it is dated 11th November 1993 and, like V 2.19 of Impression II, far from bug free. I know that many of you don't like that, because you've told me so in no uncertain way. I don't think I'd go as far as one of my correspondents who says that "Software containing bugs contravene the Trade Descriptions Act and must be upgraded free of charge at the earliest opportunity"; but I do sympathise.

Although it's difficult to count a lack of something I'm sure you'll follow me if I say that free upgrades are a cost which many software suppliers are avoiding with increasing frequency. As Mark Howe says,

the situation is far from satisfactory and (at least as far as the Acorn market is concerned) it is not going to go away. I do not want Acorn software suppliers to take the PC route (i.e. to make a substantial charge for upgrades which are often no more than bug fixes). I prefer the four suggestions which Mark makes for improving the current situation.

By the way, like Mark, I don't like the CC dongle; if I 'downgrade' from Publisher to Style then can I get rid of it?

The customised Risc PC

Now to hardware. At Acorn World 94, I found that many of the better hardware suppliers were concerned enough about margins to want to drop out of the Acorn hardware market altogether. Although this is understandable (I believe that Acorn offer minimal margins to retailers) I wonder about this strategy too.

An advantage of the Risc PC over the Archimedes is that it will allow users to upgrade piecemeal in the same way as PC users do now by buying sound blaster cards, CD ROM, video cards, hard discs, monitors, etc. My son has made me a PC from component parts this way.

In the Risc PC, I see the possibility of buying similar mix-and-match combinations which will allow the purchaser to buy a set of hardware customised to their own requirements. Up to now, Acorn has deliberately locked out this potentially lucrative market for hardware suppliers by insisting that you can't buy part systems. I expect that, sooner or later, Acorn will realise that their current policy will leave only the 'box shifters' who compete only on price and not on service. I believe that they will relent and allow registered Enthusiasts to buy tailor-made hardware systems from those agents (such as Norwich Computer Services) with the necessary expertise to supply a hardware support service. At present, only registered Enthusiasts can buy a box without a monitor but, at least that's a step in the right direction.

Other letters

Some of the letters I've received ask me for advice or have questions which I feel incompetent to answer.

Here is a small sample: (a) Whether to buy a proper cheap PC or a Risc PC (b) Whether to sell an A310 and buy a secondhand A3000 which is going cheap (c) Whether I agree that a 5¼" drive is an "essential" that is missing from the current Risc PC specification (d) Whether I believe that the price of the Canon BJC-600 printer will fall further in the next few months (e) Will Interdictor 2 run on a Risc PC? (f) Will Chicago, NT, Windows 95 run as well on a Risc PC as it will on a (yet to be upgraded) PC?

If you have any comment then please write to the appropriate column of Archive – I don't know the answers!

One of the questions that has come up in about a dozen of my letters but in slightly different forms is: "Will the Risc PC with upgrades manage keep up with a 'true' PC which (referring to the PC) has got all the avenues for upgrading built in?". My answer is that the Risc PC is ahead of the PC at present and, I believe, it will remain ahead.

The implication of the question is that you've bought a Risc PC to run PC software (or to add PC hardware)! If you want PC hardware and software then the best way to do that is to buy (or get your son to make!) a PC and keep buying the hardware and software upgrades.

I believe that the Acorn machines are better in many ways. I find that the Desktop is far more friendly than Windows; I find that the packages I use on the Archimedes are faster than the packages I use on the PC; on the Archimedes I can link Draw to Publisher, Fireworkz and PipeDream and all of them use the same printer driver and fonts; I like the OLE feature of Publisher and I expect OLE to be included in many more packages.

Cross checks

The interest shown in this topic (see 8.2 p34), has been much greater than I expected. It would seem that many of you are now successfully using the custom function which I gave, namely:

```
...function("same_number","first:number",
                                "second: number")
...result(if(abs(@first-@second)/(@first+
          @second)<(1e-16),"OK","Error"))
```

to determine whether your spreadsheet is working correctly or whether it has failed in some way. The

only criticism I have received is a suggestion that maybe the value of (1e–16) is too small. All but one of those expressing this view do not use PipeDream 4 or Fireworkz. Naturally, before I suggested this value, I ran extensive checks on many PipeDream and Fireworkz spreadsheets and, in nearly all cases, the value of (1e–16) does its stuff! When it doesn't work properly, I have found that (1e–15) overcomes the problem.

Colin Singleton points out to me that this low value, (1e–16), corresponds to double-precision floating point arithmetic. The conclusion is that both PipeDream 4 and Fireworkz do use double-precision floating point arithmetic! Colton Software confirm that this is the case. Colin and others who have written to me are quite right that, if you use standard Acorn Basic (not the Basic64), the precision is such that you need the rather larger number, (1e–9), instead of (1e–16) in the check function.

A puzzle

Colin has also proposed a puzzle which relates to integer arithmetic and rounding. I've discovered that many of you who read this column do like numerical puzzles so here it is.

My day job is as a (currently much overworked, stressed, harassed and recently inspected) lecturer at Swindon College where I teach almost anything which is Mathematical! One topic I teach is Applications of Statistics. Many tables of statistics (particularly those published by the Central Statistics Office) include a footnote which reads "Components may not add up to totals because they have been rounded independently". Let me explain. Consider the sum 12.4 + 8.4 = 20.8. If you round the components (the two 12.4 and 8.4) to get 12 and 8 and then add them you get 20. If you round the total, 20.8, you get 21. There is a temptation amongst those who have not been taught properly (e.g. by me!) to cheat and change some of the rounded values so that the rounded values do add to the total. You should never do this with a statistical table; include the footnote I've quoted from the CSO publications instead.

However, accountants do it all the time! They teach the subject of rounding differently – just to confuse the students!

Colin Singleton (are you an accountant?) wants an algorithm which will round the total correctly but will then go through the components adjusting one (or more if necessary) so that the components do add to the total.

The rules for this puzzle are: (a) That the component which is chosen for adjustment must be the one most suitable. By this I mean that you should round up a value such as 12.4 to 13 before you round up a 12.3. Similarly, you should round down a 12.6 to 12 before you round down a 12.7. (b) The minimum number of components should be adjusted this way. (c) You must round by less than one unit.

If you do come up with an algorithm (i.e. a solution) then please send it to me on a disc rather than in printed form so that I can more easily make it available to others.

New modes

Another topic which seems to be very popular with you and has lead to much correspondence appeared in this column under the heading TaskX.

If you create sprites in one of the Risc PC new modes and import them into Fireworkz, you may find the area which should be occupied by the sprite is blank! The solution is to update your TaskX module. Send me a blank formatted disc and I'll send you a copy of the new TaskX. Please note that if you use this new TaskX with RISC OS 3.1, not only will it do nothing extra for you but it will stop Fireworkz working properly. So, don't fit the new TaskX unless you have RISC OS 3.5 (or later).

Non standard modes

In my best desk-side manner, let me be nice and thank all of you who send me discs before being nasty and telling you of something you do which causes me problems. I guess that it's not only me that has the problem but also the Archive editor and many authors of columns in Archive. Before I start, let me thank Jim Nottingham for raising my awareness of this problem from which many Archive authors must suffer.

The utility VIDCModes, to which I referred in the November 1994 Archive, defines a new mode, mode 102, which, in characters, allows me (just under) twice the width and twice the height of a mode 12

screen. I like to use it with my 17" Eizo 9070S monitor because I can get more windows on the screen in that mode than in any other. Once upon a time, shortly after I got my 17" monitor, I sent my PipeLine column to Archive (on disc) containing sprites (screenshots) I had created in mode 102. I got a call from Paul saying that he couldn't read my sprites. They gave an error message which I think was something like "Bad Mode". After a little discussion, Paul loaded the mode defining module (which is on one of his Shareware discs) and then his Impression accepted the screenshots which I'd created in mode 102.

In the past, I've had many similar problems with contributions to PipeLine; these problems were nearly always with files sent to me by users of Impression II. It took me quite a while before I found out why. One day, instead of using the A540, I used the A440 machine on which I had Impression II installed (I've got only one dongle) and, to my surprise, the sprite which wouldn't load into PipeDream on the A540 did so on the A440. What was the cause? A utility called !NewModes is packaged with Impression II which allows those with a standard non-multisync monitor to increase the area (in pixels) used by their desktop. It would seem that mode 66 is the most popular mode for non-multisync use. I hadn't got the NewModes utility loaded on the A540 and couldn't read the sprites. The solution was simple. Load the CC NewModes module into the A540 machine and all the sprites from my correspondents (remember that the sprites are hidden in a PipeDream or Fireworkz document) could be read even though Impression II wasn't loaded.

When you upgrade to a Risc PC

Part of the most recent letter I received from Jim Nottingham refers to loading sprites he's received from others. He says: "I still haven't had much joy with the Risc PC as this doesn't seem to want to recognise 'non-standard' modes, even if the extra (mode defining) modules are loaded". Does this imply that the Risc PC can't make use of the NewModes or VIDCModes modules? Does this mean that all my mode 102 sprites (which use the VIDCModes module) won't be accepted by my Risc PC when I get it?

This feature of the Risc PC (if true) is important to many of you now since, at some time or other, you may consider buying a Risc PC (or you may want to send documents containing sprites to someone who has only a Risc PC). When you do, you will want all the old documents you created on the earlier platform to work with your new machine.

Sending me sprites

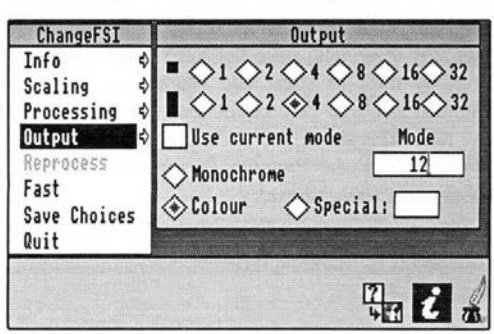
So, there we are. When you send me (or any of the Archive authors) a disc please make sure that they are going to be able to read your sprites! As a general rule, you should apply the principle, "Use the least sophisticated mode which contains all the attributes you need to make your point". For example, don't send an Archive author a 16M colour mode sprite if a 256 (or 16) colour mode will make your point equally effectively.

Let me be specific. If you have a Risc PC and you send me a disc containing a sprite, remember that I don't have a Risc PC and so I can read only numbered modes such as 12, 15, 27 and 28. I can't read 16M colour modes. If your screenshot has been taken in some unnumbered mode on a Risc PC then I won't be able to read it (yet).

ChangeFSI

So what can you do about ensuring that authors can read your sprites? There is no need to change the mode you're working in. By all means save your screenshot in a 16M colour mode but then use the utility program !ChangeFSI (supplied by Acorn and on the Archive Utilities Disc N° 8) to convert your sprite to one of the numbered modes which I (Paul, Jim and others) can read more easily.

The screenshot below shows you how to set up ChangeFSI so that your sprites will be converted



into mode 12 sprites. Mode 12 is a 16 colour mode so, if you want 256 colours then you will find it beneficial to convert to mode 15 rather than 12. I suggest you *don't* convert to mode 27 or 28 since these modes cannot be read by machines having the RISC OS 2 operating system.

Finally

In this issue, I had intended to include a brief note explaining the differences in the nature of Styles in Impression and Fireworkz. That, together with my draft for the next part of my series on future proofing will have to wait for another day.

It must be time again to remind you that my address is that of Abacus Training which you will find on the inside back cover of this magazine. Writing to me via the Archive office causes delay and extra expense. Please send me your comments, examples, questions and problems in the form of a disc file. It makes things much easier for me if I decide to publish them or to make your comments available to others. **A**

Gerald and I agree that "Document Production Column" doesn't really do justice to the range of topics he is covering. "Gerald's Column" is a bit unimaginative so how about a competition for the best alternative? I'll give a year's free subscription to the magazine for (what I think) is the best title. Ed.

Pocket Book Column

Audrey Laski

Hardware matters

Ian Ford, of Stockport had to send his 3A back to Psion because of two problems which other users may be concerned to hear about. The keyboard had to be replaced because some of the key legends were wearing away, and the screen had become badly scratched, apparently by the top row of keys. Psion suggested that the keyboard had become dirty and transmitted the dirt to the screen, and then the frequent opening and closing had caused the scratches. His advice is to clean keyboard and screen regularly, probably with a spectacle or lens cleaner. However, I was somewhat shocked to see that he had had these troubles while his 3A was still under guarantee. It seems as if either he had a rogue specimen, or that the Psion is seriously less well finished than the Pocket Book, since mine, uncleaned for fifteen months and heavily used, has shown no sign of similar problems.

In relation to the question of ruggedness, he mentions that his 3A has survived getting wet while sharing a bicycle basket with a leaking mineral water bottle. This is reassuring, since Pocket Books are often in danger from spillages of various sorts.

Roger Jackman, of Slough, warns of the possible risks inherent in using rechargeable batteries, which he had hoped would be as useful in the Pocket Book as in other devices. He notes that these batteries "suddenly run out of juice", so that the Pocket Book has to switch to the backup battery without the user's noticing the fact. His advice is to change rechargeable batteries regularly, but points out that the frequency will vary with use, so what "regularly" implies, every user will need to establish individually. It may be more economical in the long run to stick to ordinary throwaway batteries. Incidentally, have other users been troubled, like me, by a discrepancy between battery power messages? When I had been using a set of batteries for some time, I started to get the battery warning on switching on, but found the battery information accessed from the desktop still saying "Good"; I didn't know what to believe.

Hot keys

The query from Peter Young, of Cheltenham, in last month's column, about adding hot-key shortcuts stirred much interest. Ian Ford suggests that another useful Write shortcut would be one for case swapping. John Woodthorpe, of Rugby, who first alerted us to the useful programs available from 3-Lib, recommends a macro-generating program they have for the 3A, which will presumably also work for Pocket Book 2, as a way of 'rolling your own'.

Printing problems

I have had some queries about discrepancies between what appears on the screen and what is

printed out. I'd be glad of more examples so that they can be tackled as a group, and it would be particularly useful to know if printing is being done directly or via the A-Link to another machine.

For those in the vanguard

The goodies available to those who have advanced to the Psion 3A or Pocket Book 2 continue to make the rest of us greenish. John Woodthorpe also draws attention to a Shareware application by Steve Litchfield of 3-Lib which provides a 3A road and hotel mapping system which shows distances, main roads and motorways between given places. Picture the Psion 3A/Pocket Book 2 user, arriving fresh as a daisy in Southampton after an easy drive during which she has dictated part of her memoirs on the recorder, sending a few faxes via the Psion 3Fax, relaxing with a glass of wine, chosen with the advice of the Hugh Johnson Wine Guide, and a crossword assisted by Spell 2 and the Thesaurus, before settling to some serious programming with the latest version of OPL...

Endnote

It isn't quite a flood yet, but the letters are beginning to flow again, as the column shows. I look forward to even more in the New Year, and wish all Pocket Book and Psion users a very happy one. A

Puzzle Corner

Colin Singleton

In this column last month, I stated my policy of offering original puzzles only – and this month I am going to break this rule! The second puzzle, *The Hole*, is a classic in the field of Recreational Mathematics, but if you haven't seen it before, the answer is quite surprising. Please be honest, and do not submit an answer cribbed from elsewhere.

The two puzzles this month have one thing in common – there does not seem to be enough information to answer the question. Nevertheless, they can both be solved. They are mathematical puzzles rather than computer exercises, but you can, perhaps, use your machine as a tool to assist your investigation. Isn't that what computers are for? Try experimenting with different values of the 'missing' variables. Good Luck!

Here are this month's two puzzles ...

(5) Cheat!

I have just received from the Editor of a certain magazine (not *Archive*), the bundle of entries to the the puzzle I set in the magazine a few weeks ago. There were a number of wrong answers, but 26 entrants got it right. One lady submitted two correct entries – I don't know whether she was trying to cheat, or to altruistically increase the chance of a female winner in a male-dominated field! She did, of course, give herself two chances, to everyone else's one, of being drawn out of the Editor's hat.

If I really wanted to cheat at this type of competition, I could send a couple of dozen entries in separate envelopes under false names. I could never be sure of winning the prize, unless mine were the only correct entries, but I would improve the chance of one of my entries being drawn. On the debit side, if I send too many entries, the postage will cost more than the value of the prize.

So, if I am confident of my answers, and I want to maximise the return on my 'investment' in postage, how many entries should I send to each puzzle?

(6) The Hole

A cylindrical hole is drilled through the centre of a steel sphere. The remaining steel is then melted down and re-cast into a new sphere. If the diameter of this sphere is five inches, what was the length of the hole in the original sphere?

... and last month's two answers ...

(3) Tithes

Charlie won the toss 21 times (*Not* 20!)

If Charlie had staked equal *amounts* on each toss, we *could* deduce that he had won exactly half the tosses. But if he stakes a fixed *percentage* on each toss, the result is different.

A win multiplies his holding by 1·1, a loss multiplies it by 0·9. Starting with £100·00, twenty wins and twenty losses (in any sequence) would leave Charlie with only $100 \times 1{\cdot}1^{20} \times 0{\cdot}9^{20}$ 81·79. However, 21

wins and 19 losses leaves $100 \times 1{\cdot}1^{21} \times 0{\cdot}9^{19}$ 99·97; 22 wins and 18 losses leaves $100 \times 1{\cdot}1^{22} \times 0{\cdot}9^{18}$ 122·18.

With each stake rounded to the nearest penny, the final amount can vary by a few pence either side of the theoretical figure, depending on the sequence of wins and losses. But a discrepancy of around £20 is not possible.

(4) Prime Post

100 can be expressed as the total of different Prime Numbers in 198 different ways.

Yes, it is as straightforward as it looks. Nothing clever, no hidden twists. You can do it with pencil and paper, if you set about it systematically, but it is very easy to miss a few. You could, of course, make Archimedes do the donkey-work, but make sure you get the program logic right. The 198 partitions are listed in the file *PrimePost* on this month's disc.

(N.B. The number one is *not* prime! If it were, the prime factorisations of composite numbers would not be unique.)

... and congratulations to the previous month's winners.

(1) This is 1994

Winner – **Rev D Broster**, Kilbirnie, Ayrshire

The only correct answer found was $((\cdot1)^{-\sqrt{9}}-\sqrt{9})\times\sqrt{4}$. Sorry, you are not allowed e or π, or the indices $^{-1}$ or ^{2}, since these are all *numbers*, and the only numbers allowed are 1 9 9 4.

(2) Conversations

Winner – **Jonathan Ormond**, Ludlow, Shropshire

Jonathan sent a detailed explanation of his solution, which was essentially the same as the one I gave in last month's column. The series 1 2 5 15 52 203 876 ... are known as *Bell Numbers* after the Scottish-American mathematician *Eric Temple Bell*, who investigated it in connection with a number of mathematical problems.

Comments and solutions

Please send comments, contributions and solutions to me at 41 St Quentin Drive, Sheffield, S17 4PN. Solutions by **Friday 6th January, 1995**, please. A

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The Civil War – Key Datafiles

Phyllis Brighouse

To run the datafile, you need the KeyPlus database. If you are using KeyPlus for the first time, you are going to have to get to grips with the package first. KeyPlus comes with a resources disc and very comprehensive instructions in a ring bound folder, so you can take pages out and attach them to clipboards, etc. It takes you through in simple steps and is easy to follow.

This is an extremely powerful database program, however, with a correspondingly steep learning curve. It is the sort of package that should be included in staff training on "Baker Days" to enable teachers to use the package in class. Having said that, pupils do not need to master the entire package and should be able to use the datafiles more quickly.

KeyPlus is aimed at Secondary School pupils working towards Key Stage 3 and 4. As well as being able to sort and to search databases and then output the results in spreadsheet format, KeyPlus provides a powerful mapping system. This means that pupils can plot data onto maps if the datafile gives the latitude and longitude of a place. Data can thus be displayed visually as well as in the form of tables of raw data.

Schools which also have the spreadsheet program KeyCalc can transfer the Civil War data across from KeyPlus to KeyCalc to use as spreadsheet data.

Loading and starting up the program

KeyPlus can be loaded onto the hard disc, but you must have the key disc in your floppy drive. If the key disc is missing, the program demands it and will not load. This protects against unauthorised copying of programs without preventing you copying to the hard disc; you have to encode the key disc with the name of the person to whom the licence is issued. Anglia can then identify illegal copies.

The Civil War datafiles and booklet

The Civil War package consists of a slim book and a disc. The disc contains four KeyPlus files, called !Battles, !Biogs, !GarrisonI and !Garrison0. The files !Battles and !Biogs are text files describing the major battles of the Civil War and biographies of the major participants. !Battles has information on the latitude and longitude of battles as well as the date, place and outcome, so KeyPlus can paste data onto maps. Two maps are supplied: CivilWar and GB. A Swords drawfile is supplied as the symbol for use on the maps.

The two databases starting with the name Garrison are the actual records of the Parliamentary garrison at Chalfield and provide an opportunity to use a computer to manipulate primary evidence. They are the financial records of the garrison and payments made are recorded in both modern currency and the 'old money' of pounds, shillings and pence.

A file called MoneyOld provides an 'old money' to 'new money' spreadsheet file in KeyCalc/KeyCount format to help pupils convert decimal money to pounds, shillings and pence, and assist in understanding the old money. This file cannot be run unless one of the two spreadsheets is available.

There is a directory of eight drawfiles – these are eight of the pictures in the booklet, including Charles I, Charles II and Cromwell – so pupils can illustrate any writing they do about their work on the Civil War.

The Civil War Booklet is full of information about the Civil War, and is a small, multimedia history book rather than an instruction manual on running the program. Ability to manipulate the program is assumed. It includes a timeline, and tells the story of how Charles I clashed with Cromwell and finally lost his head. It uses quotations from primary sources, and suggests sources of evidence available to a historian.

The booklet gives a map marking the principle battles of the Civil War and suggests that the reader then utilises the Battles datafile and other KeyPlus maps to obtain more detailed information. At the end of the booklet are four pupil worksheets, detailing what is in the datafiles and asking questions which would be answered by using them. The !Battles text datafile can, for instance, be sorted by date, searched for the battles and skirmishes which

took place in 1642 (brief instructions on how to do this are given); the results of such a search can then be plotted onto a map (supplied as a computer file).

There is plenty of material for pupils to work with and all the files are large datafiles so you get value for your money.

Conclusion

Computer packages should enable pupils to use computers across the curriculum and carry out activities that books, diagrams and other teaching aids cannot. Tasks carried out should meet the requirements of the National Curriculum, and allow both the least able and the most able pupils to demonstrate what they can do. This package does it in spades. It has the ability to plot the results of searches of the Battles file onto a map. After a series of searches, pupils can create maps presenting the results of searches visually rather than as raw data tables. They can manipulate the Garrison datafiles (IT in history using primary evidence), and output and publish the results. The data in the Garrison, Biographies and Battles datafiles can all be output into ASCII files, edited and dropped into a publishing package, illustrated with the supplied drawfiles.

Schools which also have the spreadsheet program KeyCalc can transfer the Civil War data across to use as spreadsheet data.

The Civil War is produced by Anglia Television and works with version 3.0 of KeyPlus. Instructions for using earlier versions of KeyPlus are found in a ReadMe file on the disc. The Civil War costs £22 +VAT from Anglia Television and KeyPlus v3.0 is £60 +VAT. A

Help!!!!

• **AgendA** – Does anyone still have an AgendA seven-button chording keyboard from MicroWriter Systems? The company has gone bust and I can't contact them any more. The machines die of neglect when their Nicad batteries run down and won't recharge. I can fix them but I need spares to keep mine going. Help! **Simon Anthony**, 62 Rutland Road, West Bridgeford, **Nottingham**, NG2 5DG.

• **Printer drivers** – Does anyone have a printer driver for the Acorn JP101 sparkjet printer, please? **Simon Anthony, Nottingham**.

• **Qume laser printers** – Has anyone got a spare CC driver card for a Qume Laser Direct printer, please? We have the printer but the computer containing the driver card was stolen from our college. *(What about someone who has bought a Risc PC and found that their Qume no longer works? Ed.)* **Simon Anthony, Nottingham**.

• **Slideshow software** – Can anyone give me any suggestions for software to simulate a 'slide show' with user-controllable wipes and fades, either to the Archimedes video output or a separate card. All comments and reports (positive and negative) much appreciated. **Stuart Bell**, 23 Ryecroft Drive, **Horsham**, RH12 2AW.

• **Video to VCR** – Can anyone give suggestions for an economical way of sending video output to a VCR – either the Archimedes' own signal or else from a separate card – the highest possible quality. **Stuart Bell, Horsham**.

Help Offered

• **Scientific software** – Some time ago, I offered to act as a collator for any type of scientific and mathematical software. There are now two discs of applications, which can be obtained by sending two formatted (800Kb) blank discs, together with return postage. I should also be pleased to receive any software for inclusion on further discs. A list of the software appears on this month's program disc. **Chris Johnson, 7, Lovedale Grove, Balerno, Edinburgh, EH14 7DR**.

• **Unit Conversion** – On this month's disc is a new version of Chris' unit conversion program. The old one had liquid measures in American units, not in British (Imperial)! **Chris Johnson, Edinburgh.** A

1 Disc Rescue

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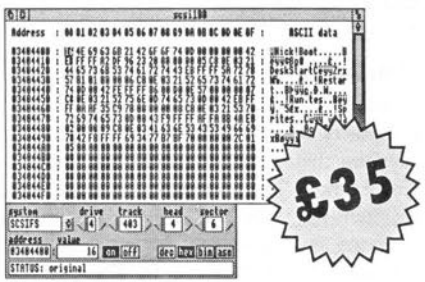
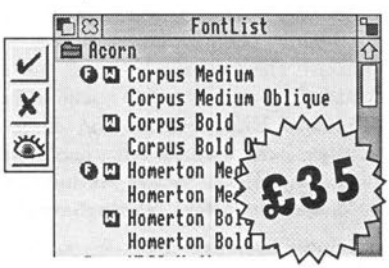
"...a well written, highly usable suite of utilities with a window-based editor at the core and an excellent manual."
Acorn User, July '92



2 Font Directory

"This program provides the kind of facilities which should have been built into the operating system in the first place. It is very easy to use, and I find it utterly invaluable. Anyone who has more than a handful of fonts should buy it without delay. It is superbly presented, operates flawlessly, and has become a permanent addition to my iconbar." **RISC User, Jan/Feb '94**



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As a result, **we have a wealth of expertise in practical disc recovery.** So much so that Disc Rescue is used within Acorn Customer Services and recommended by many of the hard drive suppliers in the Acorn world. These include companies such as Atomwide, Beebug Ltd (Risc User Magazine), ICS (Ian Copestake Ltd), Morley Electronics, Norwich Computer Services (Archive Magazine) and Oak Solutions to name but a few.

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PrimeSolver

Doug Weller

PrimeSolver is, to quote the manual, "a fun way of creating and solving puzzles." The puzzles in question fall under the subject headings of science and technology.

To assist in solving and designing puzzles, there are 56 gadgets, including bricks, water, candles, eggs, nuts, generators, motors, boilers, lasers, mirrors, wickets, etc. Some interesting characters, Mike the Bike, Henrietta Henworthy (a hen), Biggles the Fly, and Felicity Green the Frog are also available to help and amuse.

These are all put together to allow children (and adults!) to solve problems and to experiment. Minerva has thought through this program very carefully and has provided an excellent graded set of puzzles which are the best way to get into this program. When you load PrimeSolver and click on the icon bar, a 'startup file' is loaded. This brings up two already solved puzzles which give you a good flavour of how the program works.

The first involves Felicity the Frog, a flag, a tennis ball, a bomb, a curtain, a fan, electric sockets, some bricks, cog wheels, an electric motor, pulleys, drive belts, and a rope. (I may have missed something!) The frog jumps on a switch which starts the fan which blows the ball (which has already fallen and switched on the motor) down a ramp into a lift which is being raised by the motor which then knocks a bomb off a stand which falls against a candle (knew I'd missed something) and lights and then falls on the curtains, explodes and destroys the curtains only to reveal.... well, I guess you have the general idea by now.

Also on the disc are several files of example problems. The 'starter' file has sixteen puzzles (the maximum that can be stored in one file) which offer simple examples of all the different gadgets, and the manual offers a tutorial taking you through each puzzle. (You might want to try them without reading the manual first, though.)

The first puzzle has, in its action window, our old friend the frog, the framework for a swimming pool and a diving board. The gadgetbox has tiles and water, and the objective (each puzzle has an objective) is to fill the pool with water so that Felicity can have a dip. Another puzzle requires you to use a radio, two lengths of cable, a generator, a drive belt and a pipe bend, to suck a ball out of a basin using the radio. Once completed, a *Well done* message is displayed which also shows how long you spent finding the solution.

Experiment and design modes

Experiment mode allows access to an unlimited number of all the available gadgets, either to devise your own simulations or to find alternative solutions to existing puzzles. These can't be saved (to prevent overwriting existing problems accidentally).

Design mode allows users to set up their own problems including the number of type of gadgets that can be used and an objective for the problem. This objective (or goal) must be reached for the problem to be solved and the *Well done* message to appear, e.g. a puzzle might have the goal 'Break the jar without frightening the chicken.'

Other features

PrimeSolver has too many special features to be mentioned in this review. Some of the more important include:

Configurable button bar to control activities.

Gravity which can be adjusted from 0 to 200%.

Air pressure which can also be adjusted from normal down to 0% (which kills animals, stops candles from lighting, etc).

Sound (of balloons bursting, etc) can be off or on.

Keyboard shortcuts for common actions.

Snapshot will save the current work area as a sprite.

Backdrops can be created in applications such as Paint and used to provide decorative backgrounds (or indeed as stationary objects which will interact with the simulation, allowing things to bounce off them or even to be destroyed by explosions and thus become part of the goal).

Interactive Help via Acorn's !Help is also available to show how the various features and gadgets work.

This is very useful when first using the program with children.

Summary

This is an ingenious and well thought out program, with an excellent tutorial and a manual to match. It can be used with a wide range of ages (7 to 70 plus), and is both challenging and entertaining. It is truly a unique program – which may actually be a slight disadvantage. Those who have not seen it may be put off by its price, which would be a shame. At the time of writing, it is being offered by Minerva at a special price: Single User: £39.95 inc VAT, Primary Site Licence: £118 +VAT, Secondary Site Licence: £252 +VAT. (The single user version is available through Archive at £39.) A

Text Import – Part 2

Jim Nottingham

In Part 1 (Archive 8.3 p63), we considered how the various characters that we see on screen and paper are designated and also looked at the range of methods we can use to enter characters into the computer. In this part, we turn to the actual business of importing text from 'foreign' sources and specifically how we can filter out the unwanted control characters. Some of the word-processor (WP) and DTP applications for Acorn machines have built-in routines and facilities to allow this to be done in part but, as we all have access to Edit, we will use this powerful text editor – in particular its invaluable Find and Replace function – as the primary tool.

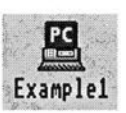
At the outset, let me stress that there will always be two or more methods of achieving the same result in Edit and I can only cover a small fraction of the entire repertoire in this article. So my intention is to deal with a limited number of situations we might meet in practice and suggest solutions, considering not only the 'how' but also the 'why', in some detail. My aim is to give you sufficient familiarity with the workings of Edit so that, when you meet a situation we have not discussed, you will quickly be able to deduce a working solution from the basic principles.

For convention throughout the article, anything I ask you to type in at the keyboard will be enclosed in <> brackets, so <Text><return> would mean type in the word "Text" and then press the return key. Similarly, <Alt-169> would mean hold down the Alt key, type in the numerals 169 (on the numeric keypad) and then release the Alt key.

Preparation

For the sake of this exercise, I will assume that you have either received the 'foreign' text on floppy disc or already imported it into your computer via a serial link or through a modem. At the end of the day, you will want to have the text converted to Acorn-speak and displayed by your WP or DTP application. So, for starters, load Edit and the WP/DTP package onto the iconbar.

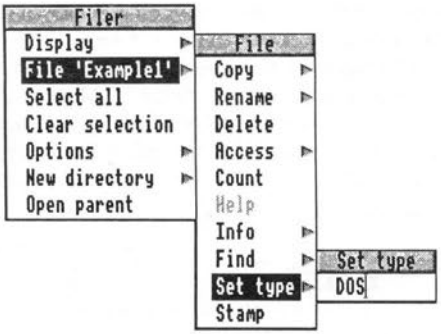
My first and most important bit of advice is that you should make at least one back-up copy of what you receive. Having learnt the hard way, I always make two copies on different storage media as a matter of course, one as a working copy and – most importantly – one I can still get at should the original be corrupted. (I still come out in a sweat when I remember the floppy that arrived from Saudi Arabia, two weeks late, with a cracked case and a mangled metal slider – arrghh!)



When you have the text file copied onto your hard disc or whatever, you may well find the icon above the filename will represent a PC. This is because the filetype has been set to the PC disc operating system – DOS. Some applications (e.g. Impression Publisher) will not accept such files so, initially, it is necessary to convert their filetype to Text. I always convert the files as a matter of course because I prefer to see Acorn-style icons on the desktop!

To do this, click <menu> over the file icon and follow through the Filer–File–Set type sub-menus. Delete "DOS" in the dialogue box and type in <Text><return>.

The file icon will change to the more familiar Text style and double-clicking on it will load the file into Edit as normal. If you will be processing multiple files, you can change their filetype at one go by



selecting them all and, this time, stepping through the Filer–Selection–Set type sub-menus.

Importing ASCII text

The most common and straightforward situation is when you need to import some text which has been sent in the standard, ASCII format, so let's have a look at a practical example of that. On the monthly disc is the file *Example1* which we can use so, for the moment, drop the file icon onto whichever WP or DTP package you have loaded on the iconbar.

Don't worry if you don't have the monthly disc, here is a truncated section of what the file should look like in your WP/DTP package window (with acknowledgements to Richard Torrens):

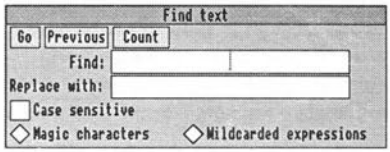
> These days, a fax facility is almost a necessity for running a business. When people asked for our fax number, they were most put out to find that we didn't have one – so we invested in David Pilling's ArcFax and bought ourselves a fax modem.
>
> What is a computer fax?
>
> The Acorn computer prints by sending to the printer a graphic image of the page which is made up as a series of dots. Normally, an electronic representation of those dots is sent up the cable to the printer. The fax modem can be thought of as a 'printer' which turns these dots into sounds which can be sent down the telephone line to a remote receiver.

The main characteristic to note from this example is that the text does not fill the column width. This is because 'hard' linefeeds have become embedded (invisibly) in the 'foreign' text and have been imported with it. It is possible to re-format the text manually, line by line, but that's even less exciting than watching Corel Draw re-draw on a PC screen(!), so we need a better method.

Find and replace

Let's see how we can use Edit to help us. Close and discard the WP/DTP document and load the Example1 file into Edit. For reasons which will be discussed later, it is advisable to set the Edit display to something other than the System font (for clarity, I prefer Homerton). To do this, click Menu in the Edit window and follow through the Display–Font sub-menus.

Initially, the caret will already be in the top left-hand corner but, as in later activities it can and will be elsewhere in the file, so get used to pressing the <home> key to re-set it. Finally, press <f4> which will open up Edit's Find text box.



In normal usage, this allows us to replace one string of text with another desired string, either singly or globally, for instance replacing "Archivers" with "Archive readers" throughout a document. This is a very powerful and flexible function and will handle not only text strings, but also individual or groups of odd characters including those from the top-bit set and even, as we shall see, control characters. I believe the only limitation is that, when using window-based character-select utilities such as !Chars, we cannot enter characters into the Edit Find/Replace dialogue boxes by clicking <select>, so we must either press <shift> (as described in Ed's note in Part 1) or fall back on the keyboard entry methods. For this reason, you may find it handy to have available the table included in Archive 8.3 p64 (*reading specs from Ed. please, not me...*).

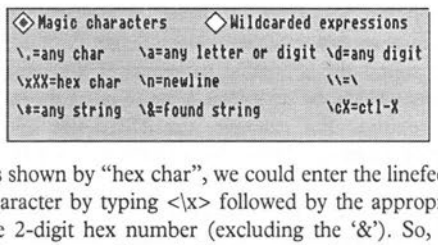
Embedded linefeeds

To deal with the unwanted linefeeds in Example1, we can strip them out by entering the appropriate character in the Find: dialogue box and globally

replacing it with something else. But what is the linefeed character? If we hunt through the table, we will find that a linefeed (LF) is the control character which has the ASCII decimal number 10. Unfortunately, a quirk of Edit is that we can't use the (Alt-xxx) system to enter the control characters in the ASCII range 00-31 into the Find: box (try it – you will get the superscript "1" instead). So we are forced to use an alternative method, in this case by entering the equivalent hexadecimal number (&0a).

Magic characters

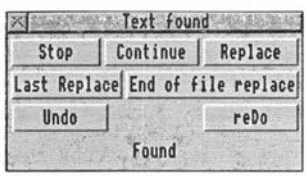
To enable this to work, we must first click on the "Magic characters" radio button in the Find text box which extends the window to display various options. (Users of RISC OS 2 will already see these options in the Find text window, but you will need to click on Magic characters anyway.)



As shown by "hex char", we could enter the linefeed character by typing <\x> followed by the appropriate 2-digit hex number (excluding the '&'). So, in this case, typing <\x0a> would do the trick. However, this is not exactly friendly so, again as shown, Edit allows us to type in <\n> instead, which represents a linefeed or what it calls a "newline" character.

So, having typed <\n> in the Find: box and pressed <return>, what do we replace it with? The answer is either a space – or nothing at all! Our problem is that this decision depends on where the text originally came from (i.e. the 'foreign' application used) so, initially, I always play safe by pressing the Space bar before pressing <return> (more on that anon).

This will bring up the Text found window, indicating that Edit has found the first instance of the linefeed character.



Normally, the first find would be marked in inverse text in the Edit window but, because these linefeed characters are 'invisible', it cannot do that; however, the caret has moved to the correct position of the linefeed, i.e. the end of the first line of text.

Next, click "End of file replace" which will bring up 38 finds – the number of lines of text and paragraph breaks in the file. Now, before doing anything else, look at the result in the Edit window. You will see that the text is now ranged across the full width of the window, confirming that the unwanted linefeeds have been stripped out successfully.

Paragraph breaks

Unfortunately, the double-spaces between the paragraphs, and either side of the heading, have also been stripped out! As Harry Enfield would say, we didn't want to do that... The straightforward reason for the hiccup is that, when you think about it, double-spacing is simply two linefeeds back-to-back (in the same way that we would normally press <return> twice to get double-spacing in a document). In these cases, Edit has simply found pairs of linefeeds, back-to-back, and obediently replaced them with two spaces.

Before we correct the error, look again at the text in the Edit window, specifically where the linefeeds used to be. You will see that – appropriately in this case – there is a single space, indicating that we were correct to have replaced the linefeeds with a space. If we hadn't, the words at the end of each line and the start of the next would have been joined together which would be a pain to untangle. Had there been double spaces (i.e. an unwanted space had been added in each case), this would have indicated that we should have replaced the linefeeds with nothing.

Back to the problem of how to retain paragraph spacing. In this case we've messed it up, so we can either go back one step by clicking on "Undo" in the Text found box and then clicking on "Stop" or, alternatively, discard the Edit file altogether and start again.

What we need to do is devise a method of getting Edit to recognise and strip out single linefeeds while ignoring double linefeeds. We can achieve this by running through the following procedure:

a) Temporarily replace each double linefeed (\n\n) with something completely different (a 'dummy').

b) Strip out the single linefeeds as above (the 'dummies' representing the double linefeeds will be disregarded).

c) Replace/restore the 'dummies' with double linefeeds (or single linefeeds, if you prefer).

What we use as the temporary dummy is not important except that it must be uniquely different; that is, when we come to replace it with a double linefeed, there must be no possibility of inadvertently replacing a matching string in the wanted text. I've seen people using a variety of dummy strings; "ZCZC", "%$%" and the like. For this exercise, we will use "%%".

Working procedure

So the suggested, full procedure for importing ASCII text with embedded linefeeds is as follows:

a) Press <home> followed by <f4>
"Find:" Type in <\n\n><return>
"Replace with:" Type in <%%><return>
Click on "End of file replace" (5 finds)
Click on "Stop" (or press <return>)

(Note: The five paragraph spaces – double linefeeds – have now been replaced with the "%%" dummy string).

b) Press <home> followed by <f4>
"Find:" Type in <\n><return>
"Replace with:" Press <space><return>
Click on "End of file replace" (28 finds)
Click on "Stop" (or press <return>)
(Note: The 28 remaining single linefeeds have now been replaced with spaces.)

c) Press <home> followed by <f4>
"Find:" <%%><return>
"Replace with:" <\n\n><return>
Click on "End of file replace" (5 finds)
Click on "Stop" (or press <return>)
(Note: The five instances of "%%" have been deleted and double linefeeds restored.)

If all has gone well, the text in the Edit window will now be ranged across its full width but the original paragraph and heading spacings will have been retained. As proof of the pudding, open an Edit save box, drag it to the WP/DTP icon and marvel at your undoubted skill in converting the 'foreign' text into fully-formatted Acorn-speak.

Familiarity and (semi-)automation

For what seems such a straightforward problem, this might appear to be a very heavy-handed procedure. However, familiarity with it comes very quickly and what we have done here for a fairly trivial sample applies equally well for the majority of ASCII-text import problems that I have met. Helping Edit to massage a 30-page 'foreign' document into perfectly formatted text in a couple of minutes can be extremely satisfying.

Indeed, because it is a relatively standard procedure, it can be semi-automated by the use of an appropriate module built into applications such as the Impression family or by using a utility such as the wonderful Keystroke. I prefer to use the latter because we can capitalise on its inherent flexibility to get round the inevitable variations in foreign-text format which, on occasions, seem to upset the built-in routines. For example, the ASCII-text output option from my Magic Note (Archive 8.1 p31) is slightly odd-ball but, by pressing <Alt-L>, Keystroke converts it to Acorn-speak at the rate of around 2 secs/page. There's productivity for you.

Next month...

With Archive space at a premium this month, this is a convenient point to break off for the moment. In the final part, planned for next month, we will look at a more complex series of problems which are typical of those we might meet in text imported directly from common 'foreign' word-processors such as Word, Word-Perfect, Wordstar and the like. With our knowledge and experience to date, we shall have no difficulty using Edit to convert the text to pure Acorn-speak, honest...

For further practice, I'm putting together a disc of example files imported from as many foreign sources as I can get my hands on, including the examples used in this series of articles. It should be ready by the time this appears in print so, if you would like a copy, please send me a formatted disc, address label and return postage. Jim Nottingham, 16 Westfield Close, Pocklington, York, YO4 2EY. A

Comment Column

• **Apple are at it again!** – After having been told off by the Advertising Standards Authority, Apple have changed their Power Mac adverts. However, they are now saying "we can offer Power Macintosh *systems* for as little as £1299..." (my italics). Next to the price is an asterisk and this is covered in a minute piece of small print at the bottom the page saying that these so-called "systems" do not include keyboard or monitor! The above sentence continues "...complete with a 160Mb hard drive, 8Mb of RAM, 16-bit video support up to a 17" monitor, sound, and built-in Ethernet networking and file sharing." Which of the above is included in the £1299 price and which not? Good question! **Ed.**

Stan Hasleton of Abbots Langley wrote to say that, last time we mentioned dubious claims from Apple, he complained to the ASA and was singularly unimpressed by the time taken by them to stop the offending material. I quote from his letter, "My case here is not the time taken for the ASA to deliberate on the complaint, rather the unexplained delay in promulgating the results to the public having arrived at their decision, bearing in mind that the ASA acknowledge that the offending material was still being circulated by Apple and therefore the damage to Acorn was not being limited." The point was that he received a letter dated 22nd July saying that the complaint had been upheld and enclosing a copy of the Complaint Final Report. However, he was asked to "treat the matter as confidential" because the report was not going to be published until 7th September!

• **ARM7500** – The news of the **ARM7500** device (Archive 8.3, p.17) seems to me to be the most important Acorn-related development since the ARM600 and the Risc PC. Though nominally developed for 'set-top boxes', since its relationship to the ARM700 CPU is apparently like that of the ARM250 to the ARM2 CPU, but with the extra benefit of retaining a 4K cache, it doesn't take a genius to envisage applications for the ARM7500 in the Acorn computer range: a 'single-box' Risc PC; a portable Risc PC; a cheaper Risc PC; a cheaper, portable, single-box Risc PC? What potential! – and what a clear demonstration of the power and flexibility of the ARM 'building-block' approach! **Stuart Bell, Horsham.**

• **Beware of the 'Expert'!** – *The Problem* – My old A410/1 was equipped with a Morley cached SCSI podule, so I thought that transferring my data to the new Risc PC would be very simple indeed. However, when I plugged the card into new machine, not only did it not work, but the computer even refused to acknowledge the very existence of the card. Disaster!

The "solution" – The local dealer who had sold the Risc PC to me said that he would consult another dealer who was considered an expert on SCSI matters. The information he received was this: My card was so old that a group of chips on it could not work with the new machine. If I sent the card to the expert, he would – for a modest fee – solder some replacement chips onto the card.

The solution! – Morley had always rendered such excellent service that I thought I had better send the card straight to them. I phoned Gary Partis to ask for the price of the upgrade.

He had no idea what I was talking about. Those chips I had mentioned have been the same ever since the first card, so the only thing needed to make mine work was the software upgrade to version 1.17, which I had installed anyway!

Gary told me a number of things I might try ... and (he hardly dared mention it) had I made sure that the backplane was pushed all the way down? I had not, of course! Actually, I had hardly looked at it, blithely assuming that it was screwed to the motherboard just as in my old machine.

A slight pressure on the top caused it to descend another three millimetres or so, and suddenly everything worked perfectly. Bliss!

The moral – If you do find someone (like Morley or NCS) you can trust, be happy, be thankful – and be faithful!

The postscript – In the course of our conversation, Gary also told me that Acorn have fitted the Risc PC

with an electromagnetic shield in the shape of a metal film sprayed into the interior. Some parts of the case are very close beneath two of the podule slots, and there have been a few extremely nasty short circuits as a consequence. To avoid all risk (or is it risc?) of damage, he advises the use of a few strips of insulating tape. **Jochen Konietzko, Köln, Germany.**

• **C Books** (8.1 p38) – Much has already been said on this but I am using "Programming in ANSI standard C" by Gordon Horsington (Sigma Press ISBN 1-85058-257-2). It is a good book with the Acorn machines in mind. Nice for beginners. **Jan Maagdenberg, Hekendorp, Netherlands.**

• **DTP Column** (8.3 p54) – Congratulations to Mark Howe for taking up the challenge of producing this column. Mark has his views of Impression, related to his requirements. The Editor has disagreed with him on one or two points, based on his needs, and I can disagree with both of them on certain points! It is to CC's credit that Impression is sufficiently versatile for all of us to swear by it.

I will half agree with Mark's comments about the toolbar. I don't use the top line – in fact, I would need to consult the manual to remind myself what most of the icons meant! I do use the second line – the Style, Effects and Rulers features. There are three different ways of implementing most features, and I use them all, as convenient, although I now tend *not* to use the <menu> key on the mouse. It's a matter of personal choice, and I complement CC on providing multi-method options so that we may choose – unlike certain rival packages on certain rival machines. It must be said, though, that the Publisher toolbar does bear more than a passing resemblance to that in Word for Windows.

I must disagree with Mark's comments about <ctrl-B> and <ctrl-I> for bold and italic. These provide the bold and italic versions of whatever font you are using (provided it exists, and is suitably named) – the old <f3> and <f4> provided Trinity.bold and Trinity.medium.italic (or whatever font was set in the Style Definition) irrespective of which regular font you had been using. I prefer the new implementation – it is more logical and more versatile. I wondered if it would be possible to change the name of a font in the Font Directory, to force <ctrl-B> to find it. I tried it and it seems to work. *(That's fine if you only ever print out on one system but if you transfer your material elsewhere for printing, the aliased fonts will cause great confusion! Ed.)*

Despite Mark's dislike of the new Style Definition dialogue boxes, I like them! There are so many more features in Publisher that a single box would be very long and would require extensive scrolling. The four-box method is much neater – no scrolling – though I do need to know which box to ask for. In fact, I do not need to edit styles very often. *(Now that may be the difference between you and Mark. He needs to be able to change styles quickly and often which is, I think, why the new layout doesn't suit his particular needs. Ed.)*

I do sometimes need to change the ruler, but I can do this without going through the Edit Style function. Prompted by the comments in the last issue of Archive, I am now finding out how. If I simply change the tabs while I am typing, the modified ruler is used from there on. It is created as a numbered effect. If I select a section of text (possibly all of it), and adjust the tabs, this too creates a new numbered effect and applies it to the selected text. If you save text with styles, and then view the result using Edit, you will see the definitions of the numbered effects, and where in the text they are switched on and off. I am glad I have sorted this out, as it will make life a bit easier. Thanks for the nudge!

I agree with Mark's dislike of the old underline and I, too, have set my own parameters. I have also set parameters for superscript and subscript. With my definition, a superscript 1 (^{1}) now produces the same effect as <alt-185> (^{1}), which was not quite true with the default superscript parameters.

Another feature I hadn't discovered (or had forgotten) is zooming with the mouse. I like the zoom rectangle feature, although you cannot easily get back to the original zoom factor. Thanks, Mark. **Colin Singleton, Sheffield.**

• **Ecology and the Risc PC** – In December '94, the leading German PC magazine (Magazin für Computertechnik) published a fascinating article by Andreas Grote about the ecological side of computers.

The author compiled data from an American study and from various other sources. The result is a rough estimate of the real costs behind one of those marvellously cheap PCs. I quote some of the findings here with kind permission from Heise Verlag, Hannover.

The article looks at the production of an average PC with keyboard, mouse, floppy drive, hard disc and CD-ROM drive. (There is no mention of a monitor, so I am not sure if it's included.)

The key figures emerging from this article, listing all the waste products and all the necessary resources, from mining the raw materials to putting the finished product into its box, are:

– 5335 kWh of electric energy are used,

– 33,000 litres of water are polluted (the water is used mainly for cleaning),

– 56,000,000 m^3 of air are polluted (this is the volume needed so that the pollution does not exceed the legal limit),

– 320 kg of waste materials are produced,

– 20 kg of this is poisonous waste,

– more than 3,000 kg of CO_2 are blown into the atmosphere (greenhouse effect!).

The author lists some comparisons:

– One average Indian uses 2450 kWh per year,

– one inhabitant of Madagascar uses 5.6 litres of water per day or 33,000 litres in 16 years,

– one Indian produces about 2,000 kg CO_2 per year,

– even one German produces only about 12,000 kg of CO_2 per year with his car, his central heating, his electrical appliances, ...

– the average German produces 320 kg of "home garbage" (wrappings, tins, ...) per year.

The poisonous waste includes dioxins, mercury, thallium, lead, strontium, barium, etc.

The energy needed for the production makes the values during the time that the computer is used appear quite irrelevant; the author quotes typical values for home use of about 50 to 85kWh per year, and for business use (40h working week) of about 500 to 800kWh per year; a "Green PC" can theoretically reduce this by 50 to 70%.

One final point the author makes is cost: In Germany, a typical 486 computer with monitor costs £600 to £800 inc. VAT. The environmental cost for energy, cleaning up water and air, waste disposal and recycling raises this to well over £2,000 – the difference being paid by "the community".

This brings me back to the title of this article: If what I have read so far about the Risc PC holds true for the near future, it will be possible to keep one of those machines for quite a number of years, just replacing parts like the CPU when needed; and it may even be possible to upgrade one's SIMMs with second hand ones (I think Paul made such an offer) once they become available.

I wonder what will become of those CPUs one sends back for the upgrade; will even they be used again?

Seen in this light, the Risc PC is really the ultimate Green Machine, and not just (as has been mentioned repeatedly) because it uses less energy when working than a Pentium Green PC uses while idle! **Jochen Konietzko, Köln, Germany.**

• **Graphic Loaders with Impression** (8.1 p73) – I am still using Impression 2.19 and have no problems loading JPEG files, but I don't use the CC Loaders. Imagebank from Irlam is a splendid solution – just drag the file from the Imagebank filer into the Impression frame. And the Imagebank application is cheaper and much more versatile. *(£28 through Archive, cf £43. Ed.)* **Jan Maagdenberg, Hekendorp, Netherlands.**

• **Keystroke** – Phew! At least I'm not the only one to find the manual for the excellent !Keystroke quite impenetrable (Archive 8.3, p.13). I really was worried that senility was creeping up fast when I found it incredibly difficult to create even the simplest Keystroke utility. I look forward to a Keystroke Column; how about a demonstration of the "Keystroke-ing" of the common text editing sequence a) replace all double <CR>s by, say, ZXZ, b) replace all <CR>s by <SP>, c) replace all double <SP>s by single a <SP>, d) replace all ZXZs by <CR>? **Stuart Bell, Horsham.**

• **Lazy calendar?** – (8.3 pp27/45) My comment on Cain Hunt's rather lazy calendar program (p27) has 'crossed in the post' with his article (p45), of which I would make the same comment. The Day of

the Week (0=Sunday ... 6=Saturday) for any Day–Month–Year is given by:

```
DEFFNWeekDay(D%,M%,Y%)=(D%+((M%+9)MOD12*
      153+2)DIV5+(Y%+(M%<3))*1461DIV4-((Y%
            +(M%<3))DIV100+1)*3DIV4+2)MOD7
```

If the user enters the first date he wants on the Diary sheets, the program can calculate the Day of the Week of that date, and step back to the previous Sunday. **Colin Singleton, Sheffield.**

• **Marketing the Acorn?** – As an American living in the UK (as the European Sales and Marketing Director for a very large US-based IBM compatible company) you may be surprised to learn that I use an Acorn Risc PC at home. My love affair with the Acorn, this is my fourth, started with my daughter's school – they had some A3000's – I was amazed! I have to say that the Risc PC is Acorn's best ever machine and is better than comparably priced Pentiums and PowerMacs!!

However, one aspect has always concerned me – the supply of, or rather the apparent shortfall in market penetration. My offices are just off Tottenham Court Road – the so-called heart of English retail IT. I can purchase Amigas (who?), Ataris (what?), Macs and PC's but not Acorn. I regularly asked myself and these stores *why?*

I read the Acorn magazines and have talked to people and I believe that Acorn has retreated (for far too long) into its own comfort zone – *education!* That's fine – in fact, hats off to you guys in Histon – Swell Job... but limited! Now I know it's the game these days to knock Acorn but whilst I can see the frustration of Acorn fans, I just want to stick my fingers in the wind and run with it!

Firstly, Clan Acorn '94 – *Well done Acorn!* About time too. Your best resource (that's free) is your fans. Don't just patronize them with competitions and late beta releases (good though that is) – *get them involved!* If Acorn receives an enquiry from a potential enthusiast refer that enquiry to a registered enthusiast – then reward the enthusiast with points! If the enquirer then orders, award more points because we know what points make, don't we? Acorn needs to supply these enthusiasts with lots of POS (literature) etc, but overall this is cheap but quality marketing! Remember, talking to somebody who has put his hand in his pocket and purchased, often means more than a salesperson with a sales story! So that is one idea to widen the user base!

Secondly, how about a Clan for professionals? The same scenario applies here but with greater impact. If the registered professional is making money then he is going to relate better than a salesman does (who makes money even if he sells *zip!*). As with the enthusiasts, award them points in a similar two stage way. So there's another idea to widen and deepen the user base!

Thirdly, the difficult one. Acorn has to bite a couple of bullets! It has to ensure its dealers have the right image and train its staff to professionally promote its products. Then it has to encourage dealers (and reward them) to go out and search for new markets (new to them and Acorn). Finally, Acorn has to demonstrate that it is committed to its current and potential users. How can it do that? It needs to use adverts and better POS, TV (perhaps), etc, but only after the user base shows signs of widening and deepening. It needs to get some of the more esoteric hardware/software onto the Acorn platform – I am thinking particularly about drum scanners and imagesetters (RIP's). I do not expect Acorn to reinvent the wheel and start from scratch but to get out there and pay these companies to port their hardware and software over. It will not be easy or cheap but the positive message it would impart would ring loud and clear that Acorn is serious and in for the long term!

I like Acorn and I'm amazed at the unfulfilled potential. Still, let's put all this into perspective – my company spends some $78m on European R&D and $48m on UK marketing per annum. Acorn has an annual turnover of $108m (everything)! If Acorn uses its own fans and lays out some seedcorn then 1995/6 could be the time when Acorn becomes an **oAk**corn! **Anon** *(for obvious reasons!)*

• **Slide scanning service** – In a photography magazine, I saw an advertisement for a slide scanning service. I sent off a number of slides to see how good this was and I am very pleased with the resulting JPEG files. I've given Paul three of them to put on the Archive magazine disc as and when space allows. *(No room this month, I'm afraid, but I can say that they looked very good on the Risc PC. Ed.)*

The company offering this service is Bluebell Software, 42 Honeysuckle Way, Witham, Essex, CM8 2XQ. Tel/Fax: 0376-516002.

They offer a range of qualities of scan up to very high resolution suitable for professional publication. I had them do 'Standard' scans on twelve slides and this cost £2 each. The cost goes down to £1.15 per slide for 100+. The costs include discs and postage. The company will supply anyone interested in the service with a demonstration disc including JPEG files and PC software.

I am very pleased with the results and would recommend any Archive reader with an interest in photography to try having some of their 35mm slides digitised. **Alan Angus, Blyth.**

• **Squirrel 2 (1)** – I have been a user of Squirrel for a few years now. Earlier version were so buggy as to be unusable for serious applications. When version 2 came on the scene, I tried it only to find that there were still a number of peculiar bugs. Now that I have reached version 2.08, the bug level is acceptably low. I like the program very much and have always found the support staff very helpful and courteous. **Bernard Veasey, Bognor Regis.**

• **Squirrel 2 (2)** – I use Squirrel 2 in an office environment for records of schools and individual teachers using our museum (yes we are registered under the Data Protection Act!). I went over to Squirrel 2 from Minerva's Delta Base. My staff all use the Squirrel 2 files but they are not interested in the finer points of the program – they just want the information to be easy to access.

The non-standard key combinations of Squirrel 2 are a problem. It takes quite a while to understand the different combinations and how they change depending on which task the program is doing. I find the confirmation box for each key-press annoying as it means using both the keys and the mouse to accomplish, for example, writing one record.

The learning curve for the basic data entry and search parts of the program was quite easy but getting to grips with the report set-up has proved to be much harder. I am quite fussy about how reports look and I often find that I am spending hours fiddling with the annoying habits of Squirrel 2 in its report design mode to get data positioned properly on the page. There is much trial and error involved and this takes a lot of time – I long for the ability to set up a report page quickly and know exactly where things will end up without having to go through the preview option and often a trial printout too.

There are one or two problems that I have not yet been able to solve – there may be a way round them but a good program should have led me to the solution via a menu or the manual by now. Boolean fields in reports cannot have a font assigned to them – the only choice seems to be rather ugly sprite for the ticks and crosses. I have never found an easy way to remove extra space at the end of each record in a report – it is too easy to create this while moving fields around, and I often resort to starting again rather than fiddling about for ages. I often seem to lose the font definitions for some fields in reports and the printout appears in the system font. The same seems to happen when a file is loaded – the font definitions, that looked OK before, have mysteriously vanished.

However, there are some aspects of the program that I like a lot. The search functions work very well and I like the way that the field containing the cursor can be searched in order. Data entry is simple and it is easy to alter the design of the record without losing data. Once I had persuaded Delta Base to output files in the correct format, Squirrel 2 imported them easily. The ability to design a report and then get an output file automatically is a real advantage – it means that I can set up a report for, say, an address database and then a colleague can create a CSV or Text file for easy merging into Impression by simply running one Squirrel query file. The mail-merge links with Impression are also useful (they operate via a separate CSV file) and it is now quite easy to set up a mail shot and get good results quickly.

One problem I had was to insert a text field at the end of each address record in a Squirrel report to include the Impression command "{Nextframe}" to produce a sheet of address labels – the report output file kept losing the last bracket of the field. Digital Services were excellent and gave helpful telephone advice until the problem was solved by dragging the field size in the report set-up to much larger than the text field. Other problems have also been dealt with efficiently and with good humour by them.

So overall what do I think of Squirrel 2? It is good, but not quite up to professional standards and the report set-up is not easy for a non-experienced user. Perhaps I am asking for too much but isn't it possible to combine the power of a full-facility database with the ease of use that enables a 'normal' user to access all its facilities and increase their productivity without having to spend excessive time getting up a too-steep learning curve? **Peter Clarke, Warwickshire Museum.**

• **Squirrel 2 (3)** – As a regular and enthusiastic user of Squirrel, I am sorry that I have not been quicker in leaping to its defence and to the defence of Digital Services in response to the criticism they have received in your columns. I teach GCSE and A-Level Computing at Forest School, a large independent school with over 1200 pupils in North-East London. Each year we have over 100 GCSE candidates in Computer Studies and about a dozen A-level candidates, the majority of whom use Squirrel as the major software tool for their project work. Additionally, I have the task of managing all the school's internal data with the exception of Billing and Accounts. This data (around 100 Squirrel tables) is held on a central server from which it is accessed from terminals throughout the campus, including the three main administrative offices who have the database in constant use throughout the school day.

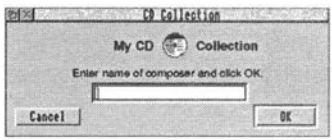
Séan Kelly, claims that Squirrel 'is unsuitable for a more demanding environment'. One of the greatest requirements of a Database Management System is that it should be responsive to change. In a school like ours the user requirements are constantly evolving. Almost every day, somebody wants a new report designing, a new field added to a record, a completely new view of the database. Not only are new views, queries and reports easy and quick to design but a complete table with hundreds of existing records can be modified in a few minutes with no need to export or import any of the existing data. I would maintain that our school is a most demanding environment. Our Squirrel Server runs night and day 365 days a year and I simply cannot remember the last time it crashed.

I have been using Squirrel ever since it first appeared on the market over three years ago and from the first it has been the strength of its performance across the network which has attracted me to it. I am often told how deficient our Econet networks are compared to the best available today, so it is a constant delight how rapidly Squirrel can retrieve data across it. As an example, the Pupil table which is at the heart of my database has 1235 records with 38 fields including two variable length text fields. Sitting at my desk here on the opposite side of the school from the server I have just executed a query requesting all the pupils in the school with brothers or sisters in the school. It took Squirrel just over four seconds to locate 436 records and sort them into surname order. Now that the query has executed, I can move backwards and forwards between records with no appreciable delay between clicking on the icon and the record appearing.

Of course, every system has 'the odd peculiarity' but if we were not prepared to overlook the odd peculiarity in our friends then we would have precious few of them! In any case, I can find no trace of the bugs he mentions in version 2.08. It takes time to learn to get the best out of Squirrel but I defy anyone to find a complex software package where this is not the case. In a multi-user system like ours, a great deal can be done to ease the path for the inexperienced user. Over the years, we have built up a very large library of queries and reports which can be accessed from a menu. Squirrel 2 was a great step forward in this area. Setting up a view involving two or more tables is too complex for most users but, in Squirrel 2, it is possible to hide the relational join inside a Query filter and still allow the casual user to type search values into the fields as if it were a simple query on a single table.

One feature which has proved very useful to us is the ability to use system variables as query selection criteria. I must admit that I pestered Ian Bastable at Digital Services long and hard to provide this facility and he responded too late to document it in the new manual. Information about it is therefore in the Errata provided with the package. The power of this is that it allows a channel of communication between user-written programs and Squirrel, and consequently increases enormously the customisation potential of the system. As an adjunct to our own system, I have written a utility called !SqlFront which can be used to provide a simple front end to

regularly used queries or reports with a single parameter. There is a program and template which is common to all versions of the application. To develop a new use, all you need to do is define a query where the query filter is set as '@User$Query', provide any necessary sprites, and define a few settings in a small text file. The resulting window might look something like the illustration, which is one I devised for myself for searching my CD collection.



Features which can be varied are the title bar text, the heading and sprite, the prompt message, which field or fields are to be searched, whether the application installs itself on the iconbar or not, and whether the text should be converted to upper, lower or mixed case. In addition, the OK button can be replaced by Print and Preview buttons for a report. Even the writable icon is optional. I am very happy to distribute this utility to anyone who wants it. I hope it may inspire someone to develop it further. *(I've put it on this month's program disc. Ed.)*

I would not disagree that there are features missing from Squirrel. There is talk at Digital Services of a Squirrel 3. How soon this appears must depend to a great extent on how large DS perceive the market for a new version to be. Personally, I have always found the staff at Cosham unfailingly polite and helpful and willing to listen to all my comments. If you are a Squirrel user, let them know what your wish list is. If you are not, take my word that Squirrel is already an excellent package and amazing value for money. The only DBMS at the moment with more power is S-Base but only competent programmers can get the best out of it and developing applications is much more time-consuming. As for DataPower, it still cannot handle relational queries.

Robert Bishop, London E17. A

Multimedia Column

Paul Hooper

Over the past month, I have had over fifty letters which have asked me to tackle various problems with multimedia, so I shall be devoting much of this column to trying to solve them. With this amount of post, I must admit that I have got a little behind in the letter-writing stakes. If you are still waiting for a reply, please bear with me!

Quite a number of readers raised the problem of animation within a multimedia application but the solutions are different depending on which of the multimedia packages you are using.

Magpie and animation

Replay is the only animation file format that Magpie can handle. It is just a matter of dropping these onto a page. Although this may at first seem limiting, the use of 'Hide and Reveal' and 'transparent' overlay pages can be used to give a style of animation. If you want an example of this, the 'Insects' binder from the swap shop catalogue shows the life cycle of a butterfly using this technique.

Genesis and animation

Genesis can also handle Replay and, with the more modern versions, it is just a question of dropping them onto the page and setting up the style box. Genesis can also handle Ace films – again a drop technique can be used. A number of readers were unsure how to create Ace films and, as far as I am aware, the following packages can save out in Ace format: Euclid, Mogul, Rephorm and Tween. If you know of any other programs that save in this format, please let me know. Although Rephorm is a good tool for animation, the other programs are beginning to look a little long in the tooth – indeed they all need to be patched to work under RISC OS 3.

While the limitations on Genesis are less than those on Magpie, don't forget that Genesis has the ability to run other programs within an application. Drag and drop the application onto the page and the icon will appear – but please note that all Genesis does is store the path name so you will need to be careful about how you use this. As an example of this technique, I have included a Professional application

on this month's disc, but you will need to uncompact !Exam, !PENGUIN2 and the directory 'Paul' onto a floppy disc and rename the disc as 'Archive2'.

Key Author and animation

Key Author can also cope with Replay – again drag and drop is used but you must specify whether it is an event or an object on the timer. Ace films can also be used and saved onto the timer and run or looped. Many of the CD ROMs from Anglia TV make good use of animation to emphasise points.

Although not yet implemented, the new versions of Key Author will also allow the use of MPEG files, provided an MPEG board is fitted. It will operate in a similar way to Replay files, and the program will allow transparent selection so that it will check if a board is fitted and select the best format.

Key Author also allows you to drop out of the application that you have created into the desktop and run an external program and when you quit the linked application, Key Author will resume at the last position in the Key Author presentation.

Animation in multimedia

As noted above, the Acorn range seems to be badly served for animations that can be used within multimedia applications. The Ace films format seems to be the common standard but the programs that generate these films are, with the exception of Rephorm, very old. If the common format of Ace films is the standard then it appears that there is room in the market for a new animation program that will produce this file format.

Genesis Professional problems

After my appeal in the November issue for your experiences with the new versions of Genesis, I would like to thank all of you that have written or phoned. My thanks in particular go to Trevor Sutton, Stephen Williams and Christopher Jarman, all of whom sent me examples on disc. I have now compiled an extensive list and hope to get some answers out of Oak soon. I'll let you know the answers in the next issue.

Family trees

I've also had a number of queries about how to compile a family tree using any of the multimedia programs. At the moment, I have only composed a direct line tree that follows the way an inherited title flowed down a family. The way I did this was to set up buttons which stepped up and down a generation following the title from father to son.

A full family tree could be made using a main page, with just the skeleton family tree shown and then each entry on the page linked to a further page showing details and pictures, along with sound samples of the person involved. To illustrate what can be done, I am writing a Magpie binder of the Cubbitt family tree which should be available through the Swap Shop by the time you read this.

Free PR

My article a few months back about using multimedia to provide free PR for your organisation has, it seems, inspired many of you to create your own applications. I have received eight different 'guides' to schools, plus a number of Parents' Evening displays. I have compiled these into a PR suite that is available from the Swap Shop and may give you some ideas about how to compile one of these applications. The suite takes four DD discs or two HD discs and all are Magpie format.

Geography and multimedia

Looking through all the applications in the Swap Shop the other day, I realised that we have little to offer the geography teacher or student. I would like to rectify this in the coming months and would like to hear from any geography teacher who has ideas as what would be useful in the classroom. I'm particularly interested in topics or subjects that tie in with the National Curriculum. If you would like to help, please feel free to write or ring me, and if you have your own artwork and text that I could combine into an interactive multimedia application then please let me know.

The Swap Shop

The Swap Shop now includes nearly sixty applications, which occupy over 40Mb on my hard disc, and it continues to grow at an astonishing rate. The following applications have been added this month – 'Navigation Quiz', a Genesis application by Christopher Jarman aimed at teaching you sailing navigation. 'HardDisc', a Magpie binder written by Bill Brooks of Trevelyan Middle School, which was

an appeal to the School PTA to fund hard discs for his machines. He also sent me a guided tour of his school which has been added as part of the PR suite. Steve Williams of Liverpool sent me a couple of Genesis applications which he uses to introduce his Network and Desktop set up to his year 7 pupils. My thanks go to all of the above. Without your input, the Swap Shop would not be such a success.

In the early days of the Swap Shop, I used to reply to each letter individually. This has become increasingly difficult with the number of letters I am getting, so I have set up a number of standard letters. Please don't feel I don't care but I'm afraid my time to run the Swap Shop is very limited!

The end bit

If you have any questions on multimedia or if you want a copy of the Swap Shop catalogue, please write to Paul Hooper, 11 Rochford Road, Martham, Great Yarmouth, NR29 4RL. (01493-748474). A

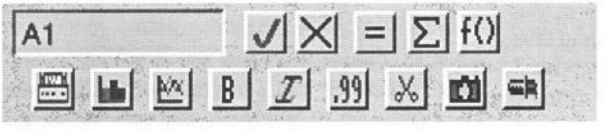
Schema 2

Simon Coulthurst

Schema 2 is available from Clares Micro Supplies for £135 inc VAT or £125 through Archive. This new version of Clares' spreadsheet program is more than just an upgrade of the original program. Clares point out that the program has been completely rewritten and is substantially different from Schema (version 1). The file format has also changed although Schema 2 can import the original Schema files. Some of the new features are: better storage giving more economical use of memory and an increase in speed of some 300% in computations; a revised, and simpler, method of applying colours, fonts, point sizes and number formats; improved handling of dates and times; use of 'Big' cells capable of holding text justified over several lines; graphs, sprites and other images within cells complete with automatic scaling; graphs can be live-linked to data in the spreadsheet. In addition to these enhancements, there are many others including an integrated macro compiler. That is as far as I can go comparing this version with the first one as I have never used the original. So to the current version...

Sensible installation

The installation instructions have, sensibly, been placed as an appendix of the manual. How often do you read the installation instructions for a piece of software? Usually, only once, so it seems sensible to put it at the back of the manual with a clear instruction at the front referring to the relevant appendix. Good thinking, Clares!



With Schema 2, the program disc must be initialised with the purchaser's name and address before it can be backed up, either to another floppy or to hard disc. To my mind, this is the best form of copy protection. It is of no inconvenience to the user, whilst still making it possible for the software house to protect their investment. Users are unlikely to pass on copies, knowing that those copies will be easy to trace. Once the disc is initialised, you copy the program icon to your working disc and then run the !SysMerge application to ensure that your !System file contains any modules required by Schema 2.

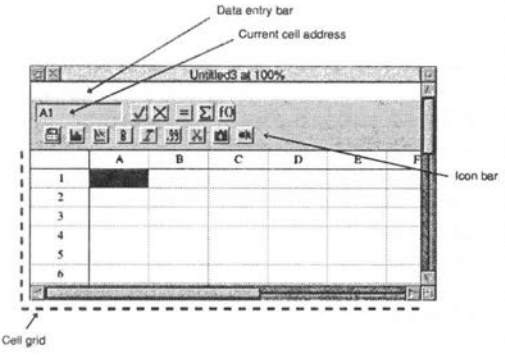
Learning by example

Schema 2 comes with a 370 page, spiral bound, manual. The first 100 or so pages form a tutorial using examples from the 'College of Irrational Sciences', a fictitious teaching establishment. This is a comprehensive and detailed series of lessons gradually building experience in the use of the spreadsheet. I wish more software came with this level of hand-holding – nothing beats a good tutorial when learning a new package, except perhaps having a knowledgeable teacher hovering over your shoulder. Having been unable to find a reliable method of pre-packing teachers, Clares have had to make do with a good manual.

In the manual, the lessons are structured around nine separate examples, each

covering a different, and increasingly more complex, use of the spreadsheet. This means that even when you have finished working your way through the tutorial exercises, they can still be used as an occasional reference when a quick refresher is needed on how to achieve something specific.

I do have one minor criticism of the manual. The exercises are undoubtedly useful and contribute to getting up to speed quickly in the use of the program but I feel that they should have been placed towards the back of the manual, or preferably in a separate book, rather than taking up the first third of the book. Once you have worked your way through the tutorial, you will refer less and less to the exercises and more and more to the rest of the manual. Only a small point but it detracts from what is otherwise an excellent example of the way a software manual should be written.



Start her up...

Schema 2 is run in the usual manner – by a double-click, which installs the program's 'abacus' icon on the iconbar. Clicking <select> on this icon opens a spreadsheet window at the top of which is an input area, containing the icon ribbon and data entry area. Below this are the standard spreadsheet cells, bordered by row numbers and column letters. This initial sheet is based on the 'Default Document' which can be modified to suit your own requirements.

When you click the 'close' icon on a spreadsheet window, even if you have made changes to it, you will *not* get a message asking you if you wish to save any changes. This is because closing a Schema 2 window does not remove the sheet from memory but simply closes the window. In order to re-open or remove the sheet from memory, you must use the iconbar menu. You will be warned of any unsaved spreadsheets when you try to quit Schema.

Importing

Schema 2 will import TSV (Tab Separated Values), CSV (Comma Separated Values), SID (Software Independent Data) and WK1 – the original Lotus 1-2-3 file format that is now almost a universal format for the interchange of spreadsheet data – as well as the original Schema files.

(An interesting point here is that Clares mention in the manual that Schema is now obsolete. Does this mean that users of the original program will find that they are unable to get support? It is usual practice, when a company no longer wishes to provide technical support, to declare the product obsolete – this also helps ensure that as many users as possible upgrade to the new version! It is unusual, however, for a company to declare the previous version *persona non grata* this quickly.)

There are two possible ways of importing a WK1 format sheet: by dragging the WK1 file icon directly to the Schema 2 icon or by using the !ConvWK1 application. I tried both methods with some WK1 files from one of our DOS PCs. Some files refused to translate when dropped directly into Schema 2. This didn't seem to have any relationship to size or complexity of the WK1 file and, as I have 25Mb of memory on my Risc PC, it can't have been lack of memory. There was no such problem when using the second method – every file translated perfectly, first time.

The majority of files imported need tidying up in some way. Usually, it is just a matter of changing numbers and dates to the appropriate format, perhaps using some text 'effects' to smarten up the appearance of headings and titles. Where my original file contained macros, these were of no use in Schema 2 and needed to be re-done. My files came originally from Microsoft Excel and so the macros had been lost when saving the files in WK1 format. Schema 2 will actually try to use any macros it finds in a Lotus 1-2-3 file.

All in all, I found that I was able to get my spreadsheets transferred with a minimum of fuss from our DOS computer to Schema 2, although, for us, this

was a once only and a one way process. If translation were needed on a more regular basis, it might not be so convenient. (What we need is some clever person to design a system like 'SparkFS' or 'PocketFS' that will automatically translate between RISC OS and DOS formats. Now that would be a useful utility!)

In use

Schema 2 works just like any other spreadsheet I have ever used, at a fundamental level. It has a grid of cells labelled by the intersecting column letters and row numbers. Information is entered into the cells by typing into the 'Data entry bar' at the top of the window and then pressing either <return> which will take you *down* to the next cell or <tab> which will move you *right* to the next cell. Use of the scroll bars will move your view of the grid around within the window, leaving the column and cell labels within sight.

You can change the number of rows and/or columns in the sheet, up to a maximum of 30,000 rows by 30,000 columns (or a number limited by the amount of memory in your machine). This is done either by creating a new sheet from the iconbar menu, or by using the window menu to change an existing spreadsheet. Whilst this is reasonably flexible, I still prefer the Microsoft Excel way of working. In Excel, the sheet is always a full-size grid and memory is only used up by those cells containing any data. When the time comes to print, the Excel program assumes that you are only wanting to print those parts of the sheet containing information. You can limit the print range to a particular area if necessary.

Excel versus Schema 2

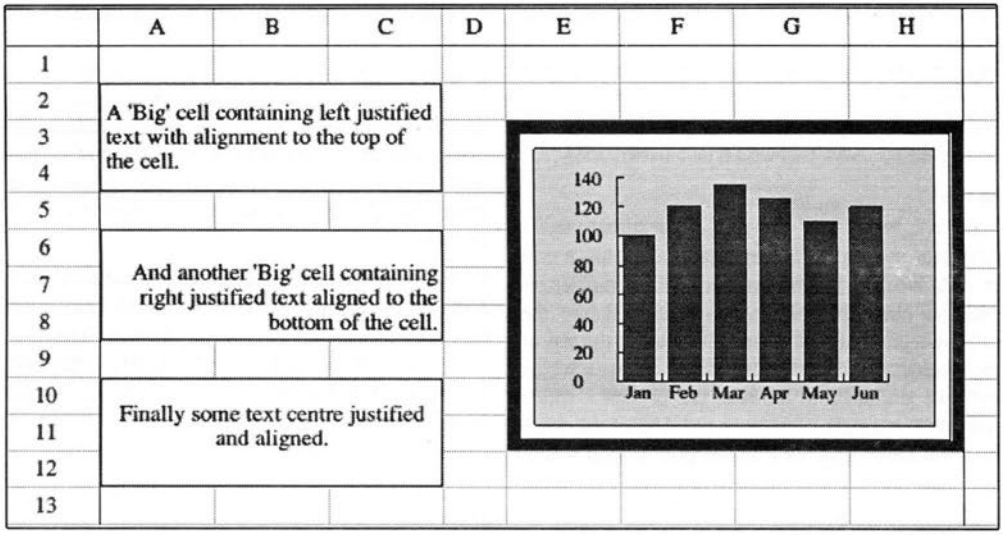
Whilst on the subject of Excel versus Schema 2, or indeed most RISC OS spreadsheets, the Acorn platform still has some catching up to do. The user interface, in most respects, is superior, due primarily to RISC OS itself rather than the applications. However, there are a lot of program features available within Windows spreadsheets that have yet to find their way into Schema 2. Ones I particularly like in Excel are: (a) The automatic help system – when the program sees you carrying out an operation it thinks could have been done in a simpler manner, it tells you so; (b) Wizards – a method of automating spreadsheet design. If, for instance, you wish to design a spreadsheet to calculate an invoice, the program asks you a few pertinent questions then builds the sheet for you; (c) Graphs – very intelligent, and logical. If you have set up a graph with a set of figures and subsequently add a new set of figures to your data, there is no need to redraw the graph, just drag a box around the new set of figures and then drag and drop them onto the existing graph. Excel will then redraw the graph including the new data.

Of course, Excel takes huge chunks of valuable hard disc space and memory in order to perform these feats of spreadsheet virtuosity, whereas Schema 2 occupies less than 1.4Mb on my Risc PC's hard disc and under 0.9Mb of memory. It will be interesting to see if the arrival of the Risc PC, and its ability to use a lot more memory, will result in larger, more complex programs.

Data entry

Having set the sheet size, we need to enter information and formulae into Schema 2 – this is where a spreadsheet lives or dies. How easy is it to use and do you have to constantly turn to the manual in order to get anything done? Well, it's pretty good news for the Schema 2 user. You can just go ahead and type the various figures and text into the cells where required and then, using the 'Function' icon on the iconbar, you can choose from the logically presented cascading menu containing the 79 standard functions. In addition to these standard functions, the program contains a selection of user defined functions (macros) – most of the Lotus 1-2-3 compatible commands have been included in this way. Once the function has been selected (having Acorn's interactive help open at the bottom of the screen can help here) it is presented in the 'Data entry bar' with the cursor placed ready for the entry of the variable(s). Clicking on a cell or selecting a range of cells will insert the relevant reference into the formula. Cell selection is carried out in the normal RISC OS manner using <select> to click a single cell followed by <adjust> to extend the range. Or by <select>-dragging the desired range. A complete row or column may be selected by clicking on the relevant row or column label.

One particular function, 'Sum', has its own button on the iconbar. Selecting this, will insert the =SUM( ) function into the 'Data



entry' bar. Pressing <return> will then execute the formula.

Big cells

One of the new features in Schema 2 is the use of 'Big' cells. These are created by selecting a range of cells and then changing the selected range into one large cell by selecting <Edit><Big cell> from the main menu. If there was any information in any of the cells, it will all be lost except for the information in the top left cell, which is then placed in the 'Big' cell itself. Text entered into the 'Big' cell will wrap around and may be justified left, right, centre or fully. A graph may be embedded in a 'Big' cell, and when 'hot-linked' to the data in the sheet, will update in real time to reflect any changes in the data. Drawfiles may also be placed in a 'Big' cell, or indeed in a normal cell.

A graph speaks volumes

Schema 2 comes with a built-in graphing option. It can produce: Bar charts – vertical and horizontal, stacked or otherwise; Pie charts – single and multiple; Line charts; Scatter diagrams; Pictograms (similar to bar charts, but using small pictures in place of the bar). Where appropriate, the graph may be shown with a pseudo 3D effect and certain sections exploded from the rest. All the graphs may be further embellished using fonts and colours plus the use of some simple Draw-type effects (lines, boxes, circles, etc). As well as this, it is also possible to import a drawfile into the graph for decorative purposes – perhaps a company logo.

A few problems

For all this power, there are a couple of drawbacks. I found that, when using data with more than 5 digits to the left of the decimal point (e.g. £500,000), the graph would default to showing the number in scientific notation (5.00e5). Whilst this may be OK in some circumstances, it certainly made my graphs harder to read and understand. When I talked to Clares about this, it turned out that there was no simple way to change the format of the numbers used in graphs. The only way to do it was to edit one of the macros that make up the graphing section of the application and then re-compile this macro.

The other difficulty I had was trying to get the text labels for my graph columns to be readable. Whilst the labels were short (e.g. Jan, Feb, Mar etc) there was no problem but if the labels were much longer than this (e.g. January), I found the label was being split over more than one line. This tended to make the graph look untidy and unprofessional. Again, the only solution was to go in and modify the macro code for the graphs.

These two problems help to highlight both the strength and weakness of Schema 2. The strength is

that it is possible (if you are willing to take the time to learn) to modify the basic program to do almost anything you would like it to do. The weakness is that the majority of users are unlikely to want to have to modify the program just in order to do something that should really be achievable by making a choice from a menu!

I also felt that some of the error messages were a little unhelpful. For instance, when I missed the closing bracket from a formula, I received a *"Bad call to spreadsheet engine"* message – Que?! I would have thought *"Missing end bracket"* would have been a lot more helpful.

Conclusion

In spite of its obvious weaknesses, Schema 2 is a worthwhile addition to my software collection. If your requirement is for a powerful and flexible spreadsheet on the Acorn platform, Schema 2 could fill your needs. In order to get the best out of the package, you must be prepared to roll your sleeves up and get stuck into the macro language. If you are prepared to do this, you will be rewarded with a program that can be tailored to suit most spreadsheet needs. If, however, you are not prepared for this degree of involvement in the program, you may be better advised going for another package. A

Desktop Hacker

Andrew Rawnsley

Not so long ago, I reviewed the then most recent version of Gamesware's Games Wizard utility. I considered it a rather limited offering and, at the time, recommended Doggysoft's The Hacker which was vastly superior and only cost £5. As if to add insult to injury, Doggysoft have now released a totally revised and updated version of the Hacker which runs inside the desktop thus offering unparalleled ease of use.

Desktop compatibility

All of the old features have been retained and updated, so that they are now more user-friendly, making hacking into a game even easier than in the past. Just over 95% of the functions work in the desktop, the exceptions being those which need to take over the whole screen to display the contents of screen memory and other mode specific data.

The new version is now fully Risc PC compatible, offering specially optimised routines. Naturally, due to the technicalities involved, previous versions are not very happy running on the new machine. However, games players should be warned that few games work on the Risc PC, and you might well find yourself returning to your A440 or the like for playing and hacking.

New features

The iconbar menu for the utility offers a slow-down option, making difficult sections of games somewhat easier to play. You should note that the entire game is slowed down, rather than just the enemies, but this does allow accurate positioning for jumps and tricky shots.

Searches can now have wildcards in them and lists blocks selected. This makes it easy to include or rule out addresses from a search. Various bugs which sometimes occurred in previous versions when handling large lists have been fixed.

Desktop Hacker offers printing at various stages via the RISC OS printer drivers, which is useful if you want to keep a hard copy of exactly which addresses, etc you changed.

Since Desktop hacker fully multitasks, its handling of memory is much more efficient, with memory allocated and deallocated as and when required. This means that you don't get lots of 'out of memory' errors when you know quite well you've got enough free.

The number of lists has been increased from 9 to 99, which should keep most users happy!

The functionality of the disassembly feature has been extended considerably, offering far more than the original or RISC OS. There are now keyboard shortcuts for the most commonly used functions throughout the program.

Various other small changes have been made, for example, the CheatMod creator has been moved from the main program to a separate editor.

Conclusions

Desktop Hacker is a completely revised utility with the ability to hack from desktop, with extra memory handling and full RISC PC compatibility. Although twice the price of previous versions, it is still excellent value – and you get 169 cheat modules giving a total of nearly 200 individual cheats!

Availability

Desktop Hacker costs £10 from Doggysoft (but cheques should be made payable to "A Clover"), with an upgrade available for 'The Hacker' owners at £5 when you return your original disc. A

DTP Column

Mark Howe

This month's column starts with an apology and then a partial retraction...

Look, no records!

I have received quite a few letters, articles etc from various readers. I had actioned most of the urgent ones, and took the rest away with me on a trip to Paris. Unfortunately, my briefcase containing the file was stolen from my car! So, if you are waiting for a reply from me, I would be grateful if you could write again. I would particularly like to know the name of the person who sent me a short article on embedded frames (I still have the article on disc). *(And the name of the person who stole the briefcase?!)*

More on Publisher

The article that appeared last month was written after a large amount of discussion between Computer Concepts, Paul and myself. After producing the version of the article that was finally published, I spent several hours with Mark Goodall of CC, and was able to go through the points I had raised in some detail. The next day I returned to France and asked my office in England to send off the disc, but my suggestions for modifying the article somehow went missing between Châlon-sur-Sâone, Guildford and Norwich. I stand by the gist of what was printed but I would like to correct and expand a few points.

Mark pointed out that the toolbar gives added functionality as, for example, in the new way of designing styles from a collection of effects. I have to admit that I still value the space on my screen more than these features, but maybe I am a closet luddite.

It is still possible to use <f3> and <f4> for bold and italic, but since Publisher deletes these definitions when loading an old file, it is hard to maintain consistency for new users working on both old and new files.

I did try to load JPEG images into Impression 2.5 but I was not using the CC loaders. Publisher will display the low-res bit-mapped images supplied with most EPS files, but it cannot display the vector information or print it to a non-PostScript printer. This means, for example, that EPS files cannot be printed at high resolution on a Laser Direct printer.

The example I gave of faulty PostScript output from Publisher Plus turns out to have been due to a breakdown of communication between T-J Reproductions and myself. T-J always resets all the PostScript settings unless specifically told otherwise, to ensure that files print correctly – sorry about that!

It is possible to ask for a dongle-less version of Publisher or Artworks that will only run on one machine. I picked up the necessary discs but, on reading the documentation, I have decided that this solution is not going to help me. Having gone dongle-less, it is necessary to swap your serial number chip whenever you change your machine and it is not possible to use conventional upgrades (a major consideration when post takes a week to arrive).

As for stability, Mark Goodall expressed some exasperation that all kinds of problems were attributed to Publisher when, in fact, they were often due to bugs in other applications, fonts, RISC OS or the Acorn printer drivers. Last week, I spent a good hour fighting with what I thought was a problem with Publisher separations. It turned out to be an esoteric problem with Turbo Driver: right company, wrong product! The situation is not helped by the tendency of Publisher and Artworks to 'claim' errors elsewhere in the system (e.g. "Error outside of Impression, do you want to quit?")

I have not used Publisher for anything very taxing since my visit to Computer Concepts, but I do seem to be having fewer crashes. I suspect that some of my difficulties come from using old documents, but the suggestion to remake them all in Publisher and scrap any document that produces an address exception is not realistic. (I estimate that I have over 5,000 Publisher documents, and it is rare for me to produce a brochure completely from scratch.) As Paul mentioned in the Comments Column last month, please report any repeatable problems to CC at once.

Finally, on this subject, can anyone think of a way to convert batches of Publisher documents from multi-file to single file format? *(Yes, use Keystroke! Ed.)* If I could change the format of all my small Impression documents, I reckon I could save several megabytes on my hard disc.

From Acorn to Offset via PostScript

Mark Howe

In this article I hope to give an introduction to imagesetting. I have tried to keep things simple but, unfortunately, both imagesetting and printing are inherently technical processes. Only a few years ago, film-making was the exclusive domain of larger printing companies and reprographics houses. Computer technology has made it possible for far more people to produce films and plates, but a certain amount of background is still necessary to achieve satisfactory results.

A quick look at offset printing

It is easier to produce usable artwork if you understand roughly what happens after you hand it to your printer.

An offset litho works by taking an image from a plate and transferring it onto paper via a roller (hence the name offset: plate and paper never touch). The plates are usually made by a photographic process from film (a transparent sheet of plastic not unlike an OHP foil), although the technology to make them digitally is developing rapidly. The films may be positive or negative, depending on the chemistry of the plates used by the printer. One plate is needed for each colour to be printed.

The plates come in various sizes, but are usually larger – sometimes much larger – than A3. Your printer may therefore lay out (or 'plan') several copies of your artwork onto one plate. Alternatively, he may plan both sides of a two-sided leaflet or several pages of a book onto the same plate.

After printing, the sheets are cut to size and, if necessary, collated, stapled and folded. Booklets are usually trimmed again, after folding and stapling, in order to remove any untidy edges.

Output media – Paper/Bromide

Simple artwork can be produced on paper using any desktop printer. Most imagesetters can also produce output onto a special type of paper known as bromide (so called because of the chemical process used to develop the image).

A film will usually have to be made from paper or bromide artwork. This is done using a repro camera, hence the term 'camera-ready artwork'. It might therefore seem more sensible to produce all artwork directly onto film. However, you may not be able to produce films in the correct format for your printer (e.g. larger than A2 or A1) and, in this case, it will be cheaper to make final films from bromide originals than from films. Bromides are easier to paste together than films, so they are often preferred by newspapers and magazines.

A small loss of quality is involved in making films from bromides but, for most purposes, this is not significant.

Films

Until recently, only imagesetters could produce films, but it is now also possible to make them using laser printers. In my experience, laser films are not very satisfactory for artwork involving large black or halftoned areas, but can give reasonable results for text and line graphics.

Plates

In the last few years, a number of systems have been developed for making plastic plates directly: Plazer and Novadom are two of the better-known brand names. The plates are produced using an A3 laser printer or a dedicated plate-making machine.

These systems are very quick to use, as the plates can be taken from the laser printer delivery tray and put straight onto the press. They are also cheaper than conventional plate-making techniques. However, they are not suitable for very long print runs, or for spot or process colour printing where fine registration is required. The image quality does not yet compare with metal plates and, to my knowledge, it is not possible to prepare plates larger than A3 (which means a printing area significantly smaller than A3).

Designing the artwork

The diagram below shows the layout of a typical piece of artwork. The following should be noted:

1: The size of the finished leaflet is shown by four crop marks. These marks will be used to set a guillotine after printing. The position of any folds may also be marked on the artwork, although generally this is less important.

2: The exact position of the guillotine cut may vary by a couple of millimetres between sheets. This is not usually a problem if there is a white margin around the edge of the finished leaflet. If, however, the design continued exactly to the edge of the leaflet, a small error in trimming could leave a thin white strip on the edge of the leaflet. The solution is to "bleed" the design beyond the crop marks, as shown below.

3: If the leaflet is to be printed in more than one colour, registration marks are required to ensure that the colours line up correctly. The name of each colour is usually marked on the artwork to avoid costly mistakes at the printers.

Limitations of desktop printers

It is possible to produce acceptable artwork using laser, inkjet or even dot matrix printers. None-the-less, most desktop printers suffer from several limitations.

Paper size

Most printers cannot use paper larger than A4. This obviously rules out the production of A3 artwork, as well as A4 artwork with bleeds. One way round this is to make the leaflets slightly smaller than A4, thus leaving room on the page for printer's marks. Another solution is to produce the artwork on several sheets, but you will have to pay a repro house to assemble them.

Imagesetters can typically print A3 artwork with all the necessary printers' marks.

Resolution

Most laser printers work at a resolution of 300 or 600 dots per inch. This is adequate for text and line drawings, but is not really good enough for halftone shading or photos. Even small text can appear indistinct at 300 dpi.

The effective resolution of artwork can be increased by photographically reducing over-sized originals. However, this adds to the cost of making the plates and is only feasible for small page sizes.

Imagesetters offer resolutions between 1200 and 3600 dpi. For photos and graduated tints, most bureaus recommend a minimum resolution of 2400 dpi, which gives sixteen times more detail than a 600 dpi printer. In addition, the individual dots produced by an imagesetter are far more regular than those produced by a laser printer, improving the print quality still further. All in all, the difference in resolution between a good laser printer and a modern imagesetter is at least as great as that between a laser printer and a nine-pin dot matrix printer.

Control over screens

Impression Publisher offers a high degree of control over the screens used to render

halftone images on a PostScript printer or imagesetter. These settings are ignored by other classes of printer, including direct drive laser printers. Computer Concepts may provide support for their own LaserDirect printers in the future (a few letters might encourage them in this direction)!

Making the choice

How do you decide on the best way of producing camera-ready output? It all depends on your precise needs and your budget, but the following guidelines may help.

1: If you are producing artwork for printing on anything but the most occasional basis, and still using a dot-matrix printer, give it to your local school and get an inkjet or, preferably, a laser printer. This will enable you to achieve much better quality, and will save your time and your eardrums. In the long-term, it may even save you money, because the price of ribbons has increased recently and bit-image printing wears them out at an alarming rate.

If you do not have a laser printer yet, consider buying a PostScript model instead of a LaserJet or direct drive one. It will be painfully slow for complex graphics, but you will have better control over the output and be able to check your imagesetting before going to your bureau.

2: If you are going to photocopy your artwork, an inkjet or laser printer is more than adequate. Choose a fairly coarse screen (e.g. the default setting on Laser Direct printers is too fine to copy satisfactorily). Alternatively, if you need 100 copies or so and you have a heavy-duty laser printer, you could run off all the copies directly from your computer.

3: If you are producing more than a couple of hundred copies of simple one or two-colour A4 designs, get a quote for printing using plastic plate technology.

4: If your artwork does not involve lots of shading, you may be able to produce reasonable results using your desktop printer. It is worth experimenting with the type of paper and/or the toner density control to achieve the best results.

5: For complex 2-colour or 4-colour printing, large formats, or anything involving photos, graduated tints or very small text, go for imageset films.

6: If you want to produce a simple leaflet with photos, but do not have access to an imagesetter, produce the artwork minus the photos and ask your printer to 'strip them in' (insert them manually) when he makes the plate.

Calling all Acorn imagesetters!

Mac and PC users are at an advantage when it comes to imagesetting. Bureaus test their equipment using files from Macs and PCs and, in many cases, they also accept files directly from programs such as XPress or PageMaker. There are few bureaus, so far, who cater specifically for the Acorn market, but if you can find one who offers the services you need, you can avoid most of the potential pitfalls inherent in producing your own PostScript.

T-J Reproductions are the only company I know of with their own imagesetter. Others, such as Micro Laser Designs, will accept Acorn files and give it to a bureau. Micro Laser Designs can also produce plastic plates using their own 600 dpi A3 laser printer. I have given quite a lot of work to both these companies, and have generally received very good service from them. Also (and very importantly for me), they both accept files by FaxPack. (Remember that I live in France.)

I believe that there are other companies who offer similar services in the Acorn world, ranging from laser printing up to full imagesetting. In a few month's time, I would like to publish a directory of such services, so please send me any information you have.

PostScript from Publisher

If, for whatever reasons, you cannot use an Acorn bureau, you will have to produce your own PostScript. Space forbids a full discussion of what is involved this month, but as a starting point, there follows a checklist for imagesetting from Publisher which was kindly sent to me by Computer Concepts, together with a few explanatory comments of my own.

Planning your document....

1: Do you need to change the master page? Is a standard master page suitable? Is a bleed required? If necessary, create a new master page. Use Edit > Alter chapter to select the new master page.

Before printing the document...

2: If required, set Overprint on selected objects.

3: Check spelling. (Utilities > Spelling > Check entire text.)

4: Check layout for frames, lines and words still correctly stacked and positioned, no orphans, etc.

5: Choose Utilities > Compile font usage list to check for missing fonts. *(Avoid PD fonts.)*

6: Check correct colour table (usually PostScript imagesetter, normal) selected in iconbar menu Preferences.

Printing the document...

7: Load !Printers. Select correct printer driver. See page 16 of the Commercial Printing Guide (CPG). Select output to file.

8: If necessary, change the page size set in the printer driver. *(Some versions of Acorn printer drivers produce incorrect PostScript with non-standard page sizes. One way round this, which was suggested to me by Micro Laser Designs, is to create a very small page definition, for example 10mm × 10mm. When you print, Publisher will then offer to produce a new page which should be the right size.)*

9: Display Print dialogue box. (File > Print.) Select which pages to print. Set required Scale. Select Upright/Sideways.

10: Choose View > Print borders to check correct page size/orientation.

11: Click on Setup... This displays the Print setup dialogue box. Check correct colour table selected. Check Ignore page border on. Check Centre pages on. Check No illustrations off. Close Print setup dialogue box.

12: Click on Typesetting... This displays the Typesetting print dialogue box. Set Separation names, Registration marks, Crop marks, as required (CPG p6). Select Separations. Select which separations to output (User Manual p78). If required, select ink level overprint. *(I always set black to overprint, as this avoids thin white lines around the text if registration is less then perfect.)* Select Use recommended. Set required Screen density (CPG p18). Set required Screen type (usually Spot 1). Set required Printer resolution (CPG p18). Select Reflect pages, if required (CPG p18). Close Typesetting print dialogue box.

13: Use View > Separation to check overprinting etc.

14: Click on Print to start printing. Impression warns you if the document is larger than the page size set in !Printers and suggests an alternative, larger page size. Click OK to use the suggested size.

Afterwards...

15: Check PostScript files in ShowPage or to a PostScript printer, if available. (I have a copy of ShowPage, but it does not work reliably under RISC OS 3.1 and CC have no plans to update it as apparently there is no demand for the product.)

16: Send the files to typesetting bureau. Tell them: number of files on the disc; size and number of pages; output medium required (Paper or Film); if you want negatives; if you think the files will take a long time to run. Remember to tell them if you want HQS or high resolution (2400 or 2540 dpi).

When you get the typesetting back

17: Check that all the files have run and that there are no missing pages/separations.

18: Check that the layout of the typeset document is correct.

19: Check the typesetting for any missing fonts or physical defects in the material.

Over to you!

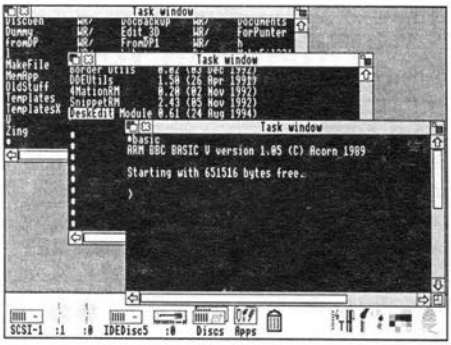
Next month, I hope to look at some aspects of imagesetting in more detail. I am also awaiting articles and reviews from other readers, and plan to include some hints and tips.

If you have any advice on any aspect of imagesetting, or if you have encountered specific problems, please let me know. In particular, I would be interested in hearing from anyone:

- who is producing 4-colour separations including their own scanned, 24-bit photos;
- who has used OPI;
- who has experimented with !FontPrint.

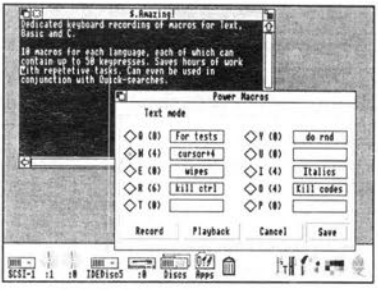
You can contact me via the Archive office, or directly at 2, Montée des Carrelets, 84360 Lauris, France. Fax: 010-33-90084139. A

DeskEdit 4



One of the most powerful and widely-used program editors for the Acorn platform has just got even better!

Whether you program in Basic or C, DeskEdit provides a massive range of features for beginners and advanced users alike. And now DeskEdit 4 adds a whole host of extra features, including dedicated task windows, and the ability to record keystrokes to build up your own battery of personalised macros!



150 SPECIAL KEY COMBINATIONS

From Ctrl-F which steps through your program one procedure at a time to Ctrl-(which performs bracket matching. You can even program keys to start tasks, open windows or issue star commands.

POWER TO THE PROGRAMMER

Create and edit your programs on the desktop (with many powerful tools at your disposal), then run them automatically within the desktop by just saving the program using Ctr-Sh-F3 instead of the normal F3 for a standard save. In C, source code can be saved and compiled as a joint operation.

POWERFUL UNDO

You can undo and redo your editing, and this together with all markers and many other features is optionally stored on disc when you save a file - so you can even undo what you edited the week before!

A POWERFUL TOOLBOX

DeskEdit has many features for the programmer, including a calculator, Basic renumber, Basic abbreviations, customisable keyword help, and much, much more.

A WEALTH OF PROCEDURE & FUNCTION FINDERS

The Browser can list all function and procedure names. Click on any Browser entry to go straight to the corresponding procedure definition; click with Adjust and a new view window will be opened on the definition.

Press Ctrl-A on a procedure or function name, and you are taken to the matching definition (and Escape-A takes you back to the call).

MULTIPLE SEARCH OPTIONS

DeskEdit provides all Edit's search/replace options plus some very special ones: for example QuickSearch can take its target from any marked text (to avoid typing), and you can restrict its search to PROC and FN definitions, or a segment of code. A single keypress takes you back to where you started from. In DeskEdit 4, intelligent wildcards give added power.

MOVE AROUND WITH EASE

Finding your place in a program is even easier with DeskEdit 4. There are dozens of special markers and position finder features which make scrolling through your program to find a particular line a thing of the past.

AND THERE'S MORE

A special input filter for automatically converting PC files etc., a built-in desktop debugger, special delete and tabbing options, a flexible clipboard, powerful printout features which use the printer drivers, powerful macros, throwback etc.

...MUCH MUCH MORE

So much in fact that Archimedes World awarded DeskEdit a maximum score of 5 out of 5 in all four of its categories: Performance, Features, Value for Money and Overall. And as you may have heard - DeskEdit is so good that it is used within Acorn itself.

A SINGLE EDITOR FOR A THOUSAND DIFFERENT TASKS

DeskEdit is just as good with text, and with the C language, where it provides most of the features offered to Basic users (where applicable) with some others added - including a unique and powerful syntax checker.

DeskEdit comes with a fully illustrated 70 page manual (with comprehensive index), a function keystrip and a smart quick reference card.

Code:	**PDE4**	**DeskEdit 4**	**Price**	**£27.19 ex VAT**
Code:	**PDEO**	**DeskEdit Upgrade From 1/2 to 4**	**Price**	**£6.00 ex VAT**
Code:	**PDEU**	**DeskEdit Upgrade From 3 to 4**	**Price**	**£6.00 ex VAT**

Please add £1.70 p&p for DeskEdit4 £0.85 for upgrades and then add VAT

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Advanced Basic – More On Impulse II

Paul Hobbs

When discussing 'Methods' in the last column, I should have mentioned a couple of things about naming them – firstly, the names are treated as case independent so 'Get' is treated the same as 'GET'. Secondly, if you have a short method name such as 'Get' that is also used as the first part of a longer name ('GetFile' for example) it should appear after 'GetFile' in the method table.

This month, we are going to look at how an Impulse request can be sent and responded to. The requesting applications code should be as follows:

```
REM some code...
REM Send a request to any listening
REM application, supplying a unique
REM tag so that the reply can be
REM recognised and decoded..
PROCshell_ImpulseSendRequest("An impulse
                command",FNImpulse_NextTxTag)
REM more code...

DEF
PROCshell_ImpulseSendRequest(Request$,Tag%)
SYS "Impulse_SendMessage",IMPULSE_REQUEST,
                  Request$,0,0,0,Tag%,TASK_ID%
ENDPROC

DEF FNImpulse_NextTxTag
G_Impulse_TxTag% += 1
= G_Impulse_TxTag%
```

The receiving application's wimp poll loop should be as follows:

```
WHILE NOT quit%:
 REM start of poll loop
 SYS "Wimp_Poll",1,bk% TO reason%
 SYS "Impulse_Decode",reason%,bk%,,,,
            IMPULSE_METHOD_TABLE,TASK_ID% TO
             reason%,,,,,token,params,object
 CASE reason% OF
   REM Handle other poll events..
   WHEN IMPULSE_COMMAND,IMPULSE_REQUEST:
      PROCcommand(token,params,object)
 ENDCASE
ENDWHILE
```

To decode the command and send a reply:

```
DEF PROCcommand(token,params,object)
CASE token OF
  WHEN Token_SomeCommand%  :
    REM Method has been found in method
    REM table, perform required
    REM actions and send the reply..
    PROCshell_ImpulseSendReply("Reply
                              string..",token)
ENDCASE
ENDPROC

DEF PROCshell_ImpulseSendReply(Reply$,Tag%)
LOCAL Size%
Size% = G_Impulse_TxTop% - G_Impulse_TxPtr%
SYS "Impulse_SendMessage",IMPULSE_REPLY
              ,Reply$,,,,Tag%,TASK_ID%,Size%
ENDPROC
```

The monthly disc contains a couple of demonstration programs to show how this all works. However, I must admit that I am still not entirely sure I have fully understood what is going on as either the documentation for the Impulse module is wrong or the module simply does not work properly. Although I have managed to get it to work, it does not seem to be as easy as it should be! If anyone has any further comments, or has managed a more in depth understanding, I would be glad to here from them.

The monthly program disc also contains a PD program called !Calendar which produces calendars by using the Impulse module to communicate with Impression.

Acorn application notes

A very useful source of information about programming techniques is Acorn itself, in the form of Application Notes. These give details of such things as the 'Drag 'n Drop' protocol used by Impression Style and how to implement a clipboard for cutting and pasting data.

Acorn have over 260 of these available to any interested parties. You just have to ask (although I am sure that a large SAE would be appreciated). The monthly disc contains an index of the Application Notes for those who want to see what is on offer.

Some highlights are:

237 Writing wimp module tasks in C
240 Cut and Paste protocol
241 Drag and Drop protocol
253 New features of RISC OS 3 Version 3.5
260 Writing applications for CD ROM
266 Developing CD-ROM products for Acorn machines

Some Application Notes also come with a disc of example programs, such as 'Writing Wimp Module Tasks in C'.

More on memory claiming

One of the first things to be covered in this column was the subject of claiming memory blocks. I have since found that there was a fundamental flaw in one of the routines presented – but because nobody complained, I can't have caused too many problems! The routine in question was the one to extend a memory block which resided in the application's wimpslot rather than in the RMA and the problem was that the wimpslot was not extended if there was insufficient space to allocate memory within the current wimpslot.

So, to put the record straight, here is an amended version that works properly:

```
DEF PROC_heap_resize(RETURN ptr%,change%)
LOCAL flg%
REM Returns a new pointer to the block (it
REM may be moved in memory). Any data
REM in the block will be copied to the new
REM location if necessary.
REM Returns -1 if the block now has a size
REM of 0 or less
REM Returns -2 if claim fails due to lack
REM of memory
REM Returns -3 if block does not exist
SYS "XOS_Heap",6,_Heap%,ptr% TO,,,size%;flg%
                    :REM Read size of block
                         to check it exists
IF (flg% AND 1) THEN
  REM It doesn't exist..
  ptr% = -3
ELSE
  REM It does,so attempt to perform resize..
  SYS "XOS_Heap",4,_Heap%,ptr%,change% TO
                                  ,,ptr%;flg%
  IF (flg% AND 1) THEN
    nrpages% = 1 + ((size%+change%) DIV
                _PageSize%) : REM required #
                              pages of memory
    SYS "Wimp_SlotSize",_SlotSize%+nrpages%
              * _PageSize%,-1 TO _SlotSize%
    oldheapend% = _HeapEnd%
    _HeapEnd%   = _SlotSize% + &8000
    SYS "OS_Heap",5,_Heap%,,_HeapEnd% -
                                  oldheapend%
    SYS "XOS_Heap",4,_Heap%,ptr%,change% TO
                                  ,,ptr%;flg%
    IF (flg% AND 1) THEN
      ptr% = -2
    ENDIF
  ENDIF
ENDIF
ENDPROC
```

The monthly disc contains the whole library again as the above routine cannot be used in isolation.

Save DBoxes

There was some discussion in previous issues of Archive about the Acorn Style Guide recommendations and, for what it is worth, I would like to add a comment about dialog boxes used for saving a file.

If an invalid path (for example, just a leaf name) is present in the writable icon, why doesn't anybody grey out the 'OK' or 'Save' icon? My wife occasionally uses Impression and this seems to cause her more confusion than anything else! She clears the writable icon, types in a name for the document and clicks OK to save it which, of course, generates an error. This in my view is extremely unhelpful in that the user should ideally not be able to do something if it would cause an error.

In order to achieve this, we need to check the contents of the writable icon containing the file name every 0.5 seconds or so and, if the pathname is invalid, grey out icon 0 (which should be the 'default action' icon in the window). The code for calling a routine every n centiseconds via Wimp_PollIdle has been covered in this column a couple of issues back during the OLE discussion.

Appearance of applications under RISC OS 3.5

A previous column mentioned the fact that because the Risc PC normally uses an outline font in the desktop, it is tricky to ensure that applications written on older machines look OK on the newer

ones. In particular, it is difficult to ensure that icons are large enough to contain the text, and also that menus are wide enough to display the menu items. I wrote to Acorn enquiring as to whether the new wimp manager module would work on older machines and the reply read as follows, 'As Acorn currently have no plans to release RISC OS 3.5 for the older generation machines, the only way in which a programmer can truly judge how an application will look under RISC OS 3.5 is to run it on a Risc PC'.

This wasn't actually the question I asked but the answer seems pretty final. The only suggestion I have is to use !DeskFonts to change the desktop font to Homerton.Medium 12pt. (!DeskFonts will be on the monthly disc if Paul has enough room!) This doesn't solve the problems with menus though as !DeskFonts doesn't handle short cut keys the same way as RISC OS 3.5.

And finally

This is the last column that I shall be writing for a while because, due to pressure of work, I am going to have little time for programming or writing in the near future. Should there be any queries arising from topics I have already covered, I will do my best to answer them. Write to the following address: Paul Hobbs, Rheinpfalzstrasse 2, 85049 Ingolstadt, Germany. A

Scribble

Christopher Jarman

Scribble is very easy to use, and a lot of fun! Once it is loaded, you are given the choice of a default set of eight colours, tools and a set of black and white outline "stamps" which can be placed anywhere on the screen and easily coloured in, using the flood tool. There are dozens of stamp designs from cats to ships, rabbits and strands of grass. Colours can be simply selected by a little hand which is the mouse pointer, and scribbling may commence! The pupil age interest level is very wide, from 5 year-old to adult.

The actual drawings or paintings on the screen can become quite sophisticated once the initial playing about has taught you the skills of handling the simple tool array. I particularly liked the easy way the tool sizes are altered merely by pressing a little longer on <Select> or <Adjust>. Like many children, I suspect, I enjoyed the power which the "Flood" tool gave, to constantly move around and change the colours of anything and everything.

A particularly good educational use is that it is perfectly possible to do some lettering and joined up writing using the mouse as a writing implement. There is also the usual text tool for adding a brief word or two, but the font choice is the rather doubtful "system" style. (I wish programmers would not always assume that a cheap and badly designed font is good enough for infants to print with. In fact, they should always be offered the very best.)

An excellent feature of Scribble is the facility to mix colours and to save and name your own choice of palettes. This is done by a very clever visual of three paint tubes, red, green and blue, being poured into a funnel and spilling out on the floor in the mixed colour!

These "Set-ups" as they are termed, are very useful, as you can pre-determine whole colour schemes and name them ready for future use. The more one plays about with this deceptively simple program, the more possibilities come to light. Pictures are easily saved as sprites, and an excellent feature is that when you select SAVE, your whole computer filing system is displayed on a scroll for you to choose where to put the sprite. Very convenient, and well worth noting for other programs.

It is possible to load sprites from all sorts of other programs such as Paint, Arctist, and so on. I found it would even load in my sprites from the Video digitiser, turning the black and white photos into a wide variety of coloured graphic images which were exciting enough to use in serious DTP applications.

Altogether an attractive and worthwhile package with a well written booklet. Good value at £29.95 +VAT from Honormead Software Solutions. A

Jumble Fun & Complete the Picture

Christopher Jarman

Jumble Fun

This program is aimed at pre-school and keystage 1 children and is a series of jigsaws which can be broken into four, six or eight pieces and assembled using mouse, keyboard or touch-window. It is well-designed and has amusing pictures which will appeal to children in the intended age range. Teachers would need to decide for themselves to what purpose they would put the program because the activity is as much to do with computer familiarisation as anything.

Complete the picture

A very easy program indeed to use because it is aimed especially at pre-school and children with special needs. It works with both mouse and touch-window. The child simply has to select up to three items in turn to complete a picture on the screen. Success is guaranteed and the rewards are pleasantly animated with suitable sound effects. This program would suit quite severely handicapped youngsters because the final placing of the missing piece is snapped into place using three levels of difficulty. For any teacher looking for a really simple program with high motivation in order to introduce a reluctant handicapped pupil of any age to the Archimedes I would recommend Complete the Picture without hesitation.

These two programs cost £14.95 +VAT each from Honormead Software Solutions. All the Honormead product prices include site licences. **A**

HQ-Tracker

Andrew Clover

Mycroft Software's first Acorn release is a suite of audio-related programs providing control of sound samples and, most importantly, their sequencing to form music. It repeatedly claims to be more than 'just another soundtracker editor'. However, with a range of features more than similar to other editors, and with the name of HQ-Tracker, it is clear that it *is* a soundtracker editor. If it is to make much of an impact in the already overcrowded Acorn market, then it will have to be a good one.

At £25, HQ-Tracker costs only half as much as the two commercial soundtrackers that dominate the Acorn market at the moment. The software comes on one disc, with two discs of instruments and a smart ring-bound manual which gives a reasonable introduction to creating soundtrackers. Inserting the software disc reveals the five applications that make up the package and, because HQ-Tracker is an extendable suite rather than a single application, there is also the shared SystemHQ directory. This contains the player module that all the applications use. Strangely, the player module is loaded when the SystemHQ folder is first seen, rather than when needed. But this is a small gripe in a suite which is generally well-designed.

The player module

At half the price of Digital Symphony and Desktop Tracker, you might expect HQ-Tracker to be less powerful that the competitors... and you'd be right! HQ-Tracker can only handle four voices of the eight available on the Archimedes and Risc PC, and it has fewer effects than other soundtracker systems. The first point is not as important as it sounds: almost all soundtracker music, even that created on Acorn machines, uses only four voices. The latter, though, is a problem.

HQ-Tracker supports only six effects: sequence jump, sequence abort, volume, stereo, speed and pitch bend. Each of these effects is encoded using separate bits of an 'event word', which means that, with the exception of sequence jump, any or all of the effects may be applied to a single note at the same time. This is an elegant, user-friendly solution and avoids many of the more bizarre Digital Symphony effects (such as 'Volume slide & fine slide down'), but means that the number of effects may

Player module	*Version tested*	*ARM6 time*	*ARM2 time*
TrackerModule	4.00	12%	20%
QTMTracker	1.20	8%	12%
DigitalSymphony	1.30	9%	22%
DesktopTracker	1.11	unknown	29%
HQ-Tracker	**1.00**	**9%**	**25%**

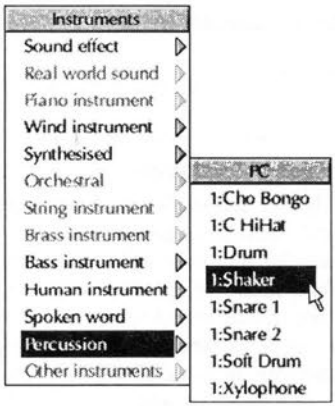
not be extended beyond the basic six without a substantial overhaul of the software. The effects are all right but I did, in particular, miss *arpeggio*, an effect vital to four-voice soundtrackers.

The table above shows the results of tests applied to the main soundtracker player modules. The results are percentages of processor time used by the player; the lower the percentage, the quicker and better the player. The results are not significant in absolute terms but they are accurate relative to each other. The players were tested using the same soundtracker file on two different systems: a Risc PC with ARM6 and fast memory and an A3000 with ARM2 and slow memory. Desktop Tracker could not be tested on the ARM6 system as it would not work with the Risc PC. In the speed test, HQ-Tracker performed quite well: slightly slower than Symphony, but faster than Desktop Tracker. Nothing was close to QTM's astonishing speed on the ARM2.

The player module provides all the SWIs needed to manage and play music and any sound effects. It is very flexible, allowing sequences, samples and sequence lists to be loaded and played from anywhere. The advantage of this is that many pieces of music may be played, using the same set of samples, and that the samples may also be used to create sound effects where appropriate. The disadvantage is that the system is over-complicated in many cases – to play a single piece of music could require over twenty SWI calls. Perhaps a simple star command should have been included to load and play a piece of music – for the faint-hearted Basic programmer!

Creating music with HQTracker

Most soundtrackers are stored as single files containing the sequence of the music and all the samples. HQ-Tracker takes a different approach, saving an application directory that contains the music sequence and each of the samples as separate files. This makes it easy to move samples around but, as Impression users will appreciate, it does have its disadvantages: lots of music sprites in the WIMP pool and the inability to use names that other applications use – call a soundtracker 'Edit' and either the music will turn into a pen or Edit will look like a music file!



HQ-Tracker also takes a slightly different approach to the management of samples. Although it is possible to leave samples scattered about the hard disc, and just drag them in when you want to use them, you can also organise them in *libraries*. These libraries may then be loaded into the HQ-Tracker editor, which categorises samples from all installed libraries into various types and allows you to choose from them using a menu (*above*), which is very handy when identifying and choosing samples.

The central editing mechanism is similar to that of every other soundtracker: the lower keys on the Archimedes keyboard enter notes in the current octave and the upper keys enter notes in the octave above it. In addition, there is a piano-style keyboard

window, the keys of which may be clicked to enter their notes. It is also possible to edit multiple notes by selecting them as a block, using the note editor window (*below*). This works selectively, so it is possible, for example, to change all notes played by one instrument to another. This works very well with one drawback: when dragging the pointer across the window to make a selection, the window does not scroll; neither can you use <adjust> to alter the selection. This means that you can't select more than a windowful of music without using the less-than-intuitive method of moving the cursor and pressing <f6>.

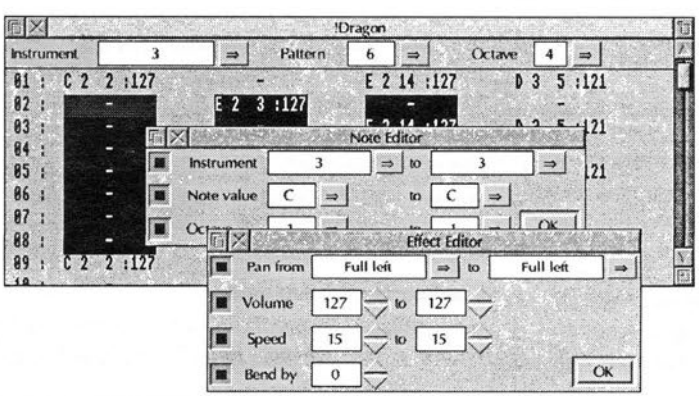
Effects, again, are a problem in the HQ-Tracker editor. The method of selecting one or more notes and editing their effects using a special window (*below*) is great, but none of the effects are actually visible in the music window, which can make it difficult to work out what exactly is happening in the music. The Effects window only applies effects to areas, instead of editing existing effects – so you can't see where effects are, even when you attempt to edit them! It's all too easy, when creating soundtrackers, to leave a pitch bend or stereo setting in the file accidentally. You don't notice it until you play the music, which then sounds not quite right. This, together with the lack of any sort of highlighting in the music window to show which part of the sequence is currently being played (which one usually gets with single-tasking soundtracker editors), can make it difficult to 'debug' soundtrackers.

In use, I found it easier to create music in HQ-Tracker than in Digital Symphony or Desktop Tracker, apart from the invisible effects problem. (This may be a bug – there is room for them in the music window, and the SWI that creates the note names does, according to the manual, show the effects.) The ability to select a block of any length and number of voices and copy it elsewhere in the music saved an awful lot of time.

The rest of the suite

The other program that gets used often when creating music is *LibMaker*. This application accepts a collection of samples dragged in, allows them to have various attributes (such as description, category and repeat loop bounds) edited and saves out a library containing the samples which can then be used by HQ-Tracker. This, too, has a few shortcomings. Firstly, unlike HQTracker itself, there is no viewer on the waveform of the sample, which makes it quite difficult to set the repeat loop accurately. Secondly, it is not possible to re-load libraries once made. To alter any of the samples, or add new ones, you must open up a library and drag all the samples in it into LibMaker. These points aside, LibMaker works fine.

HQ-Bars shows the volume of each voice as a set of VU-bars in a window – pointless but pretty. HQ-Player is a public domain player that loads and plays music applications. Finally, there's ST-Ripper. This application attempts to convert soundtrackers into HQ-Tracker compatible music. Considering that HQ-Tracker has fewer effects than most soundtrackers, and that they work differently, few soundtrackers are converted with complete accuracy. Additionally, ST-Ripper only knows how to convert music from the Archimedes *Tracker* package, not the more common Amiga soundtracker formats or Digital Symphony files or Desktop Trackers. These have to be converted to Tracker format first; the public domain program TrackConv will do the job.



Conclusion

With its lack of effects, HQ-Tracker is not the package for those who wish to convert music from other computers. Those authors needing the more esoteric effects may also

need to look at Symphony, and those who really want sixteen voices may prefer Desktop Tracker. However, if you wish to create your own music easily and don't really need the complexities of vibrato, tremolo, and arpeggio, HQ-Tracker is a most effective soundtracker. At only £25 from Mycroft Software (or £20 if you mention you are an Archive subscriber), HQ-Tracker is very good value for money – and you even get a discount voucher for a forthcoming morphing package. A

Conjugez!

Charles Hill

Conjugez! is a French verb conjugation package. The version reviewed (v3.01) was for a single user, but a site licence version is also available. The program is supplied as a single disc together with a 26 page A5 manual. The single user version can be installed (and deinstalled) to a hard disc using an !Install program which was easy to use. It can also be installed (but not deinstalled) to a floppy disc. Once installed the master disc was not required. Also included are applications to configure/deconfigure the program to run on 1Mb machines.

Running the program

Once the program is loaded, clicking <select> on the icon brings up a window which contains a candle and a 'toolbox' which allows accented characters to be typed, either by pressing a function key or by clicking on the character with <select>. <Menu> brings up a menu in French. The 'Jeu' option allows a game to be started, finished, paused and restarted. Another option allows verb tenses to be selected with a choice of 14 tenses in all together with active and passive options for each as available. Yet another option gives control of the candle which can be set to burn down in a preset (but alterable) time so that there is a time limit on each turn, and the timeout may be set to terminate the turn or just register the passage of a set time.

Options are available which control the verbs in use, display the current score and select help. On commencing the game, the window displays the numerical score, the number of the current turn, the verb infinitive with an English translation, the required tense (in French) and the personal pronoun. It is then necessary to type in the appropriate part of the verb. Pressing <return> will bring up a box confirming a correct response, allowing a retry or the viewing of the correct response. The same dialogue box allows access to the help system and specific information (in French) on the appropriate verb.

Curriculum use

I have shown the program to my Modern Language colleagues at school who were quite impressed with the scope of the program. They felt that there was now less emphasis on grammar in their courses, particularly with lower years, but, as the program had the facility to choose appropriate levels of difficulty, it could have a use with most ages from 11-18. The self-tuition facility would be particularly useful to Sixth Form students. Motivation could be improved by the use of the timed candle and as a student's skill improves, the time can, of course, be shortened. The Score option from the game menu allows the current score to be broken down and displayed as a bar chart which shows the number of correct responses for each test – a useful diagnostic aid as it demonstrates visually the performance with different tenses.

There is also an extensive Help facility (in English!) which gives access to 186 pages of grammatical instruction. The help facility has a simple toolbar to allow movement between pages (or 10 pages at a time) and there is a comprehensive index which is colour-coded into main and minor topics. An easy to use search facility is also provided. The help facility is available by function keypress, the game menu or the icon bar menu.

Also available from the icon bar menu is a conjugation option which will display the conjugation of the selected verb in the chosen tense, masculine/feminine (or both for 3rd person and compound verb endings) and active/passive.

Configuring the program

It is possible to change tenses and change the candle burn time from the main menu but these and addi-

tional facilities are available from the iconbar menu. This enables the user to load verb files, obtain help on verbs, set preferences and look at complete conjugations of the verb file currently loaded. The preferences option allows four things to be preset; the time taken for the candle to burn down, the scoring system (e.g. how many points and how many attempts are allowed), the way in which verb files are loaded and the level of difficulty. The level of difficulty ranges from level 1 (avoir, être and a few regular -er verbs) to level 9 (over 3500 verbs for A level) with level 6 (GCSE level) in between.

Verdict

My language colleagues and I were impressed by the scope of this program. It is easy to use – I could access most features without reference to the manual. The aim of the program in the Info window is "to replace the teacher" – it certainly adds a dimension to verb learning which should motivate many students and it is reasonably self-contained. I think the help system, which I have not really accessed in any detail, is impressive in its content and scope (even as judged by the index).

The network version also adds the facility to create and edit verb files which gives the teacher more flexibility and additional verbs are matched to existing verb models.

There is only one serious criticism I would make of the software which is the legibility of the verb conjugations with some monitors. There were no problems with mode 27 on my A5000 but mode 15 made reading very difficult, especially on the A310s at school with the Philips 8033 monitors.

I was surprised that there seemed to be no printout facilities, the provision of which might be a useful resource for modern language teachers. I also discovered a possible bug in that under some conditions (I've not yet worked out how) pressing a function key for an accented character produced two of them! (The other software loaded at the time was PipeDream4 which I used to type this review.)

Overall, the program seems excellent value for money and keen travellers might also bear it in mind as a different means of brushing up on their vocabulary.

Conjugez! is available from Creative Curriculum Software. The cost for a single user is £25.48 +VAT and a site licence version is available for £89 +VAT. A

Sleuth OCR Upgraded

Peter Jennings

Beebug have released the first major upgrade to their optical character recognition program, Sleuth. The upgrade first appeared as version 1.5 and this review is of the slightly later version 1.51.

Sleuth will now recognise three more fonts: American Typewriter, Benguiat and New Baskerville. It also knows six extra characters: # ^ * @ _ and can now deal with bold typefaces. There is a new option for the removal of end-of-line hyphens and Twain is supported, allowing direct scanning with Canon, Epson and HP flatbed scanners. Mode 25 and 29 sprites are also accepted, as well as 18, and so are sprites which have been compressed using Squash.

Sleuth also now stores more information about each character which improves its accuracy, particularly with letters which appear very similar, such as "c" and "e".

I tested the improved accuracy by making new conversions of scanned sprites used during tests for the original version. All were improved and most errors now seemed to be caused by characters that the program has still not been taught to recognise. A typical result came from the paragraph published in the original review last October (Archive 7.1 p53). Then there were nine errors from 330 characters, giving an accuracy of 97.27%. This time there were only four errors, improving accuracy to 98.78%. Put another way, the number of errors had been reduced to less than half.

Bold type is dealt with by using a new "Select fonts" option. For normal text, the option should be set to "Default", which is quicker and more accurate, but will not recognise bold styles. When "PlusBold" is selected, however, the emboldened words magically appear although at the expense of a slower conver-

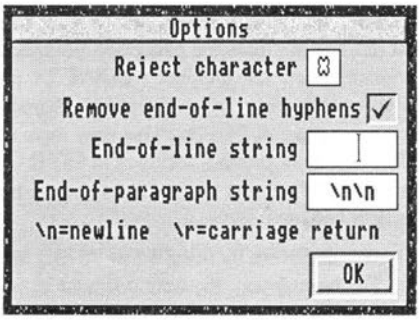
sion and possibly less accuracy when dealing with the normal text.

Improving speed

I commented in a previous review that Sleuth was considerably slower, although more accurate, than the rival OCR program, Optical. This is still the case although as Sleuth has fewer errors, the output needs less correcting and this will probably make it quicker to produce a final version. The ReadMe file suggests improving speed by using a lower definition mode, such as 0 or 12, and removing unnecessary applications from the iconbar and this can make a marked difference. I re-ran a previous test with my standard set-up, using mode 20, and the conversion took 2 minutes 35 seconds. In mode 12, it took 2 minutes 17 seconds. I then stripped my iconbar and, in mode 20, it took 1 minute 47 seconds while in mode 12, it was 1 minute 28 seconds. The timings for Optical ranged from 35 to 31 seconds.

Twain

I have seen a demonstration of Sleuth using Twain to work with the output from a flatbed scanner but Richard Readings, of Wokingham, has been testing Sleuth 1.5 with a Canon IX-4015 A4 scanner for some time and he has written in with some interesting comments. He writes: "I found that Sleuth is very sensitive to the 'threshold' selected when scanning. In a bi-tonal scan, as required by Sleuth (and most other OCR programs), each 'pixel' is interpreted as either black or white. The 'threshold' is the level of grey beyond which it is considered to be black rather than white. If the threshold is set too low, 'noise' on the original will be picked up, but if too high, some of the text may be lost. Noise will confuse the recognition process and patchy text will be difficult to recognise. Somewhat misleadingly, the 'contrast' control in Twain is used to adjust the threshold for the Canon scanner. I often have to make two or three attempts to find the optimum threshold for the scan, but the Canon scanner is fast and because Sleuth displays its output on a line by line basis, it doesn't take long to see how accurate the result is."



If the new "Remove end-of-line hyphens" option is used with the "End-of-line string" set as a space, the text file produced by Sleuth will be formatted ready to drop into a DTP or word processor page.

More and better

Beebug's declared policy is to develop Sleuth in stages. In the original review, I said that Sleuth worked well within its restrictions. The new version of Sleuth does a little more and does it even better. Registered owners have been sent details of the new upgrade, which is available for £5 plus VAT and postage.

Future plans

So what of future plans? The development of a Sleuth version 2 is well advanced and this could be available before the end of the year, although 1995 is seen as a more realistic target. Work is also going ahead on version 2.5! Surprisingly, Beebug now seem to be moving away from the idea of user-training for new fonts. Their thinking now is that this should not be necessary if the program has been taught to recognise a sufficient variety of typefaces. Sleuth has now been trained to handle eleven fonts and it will, in fact, deal with a much wider range of similar designs.

Version 2 will probably be capable of recognising more than forty and translating them with increased accuracy. Other enhancements under development include recognising more styles including italic, detecting and handling columns of type and detecting and ignoring graphics. Automatic spell-checking is also possible although this would use more computer memory. User-training has not been completely ruled out but it will be introduced only if it can be done efficiently and much more quickly than is now possible.

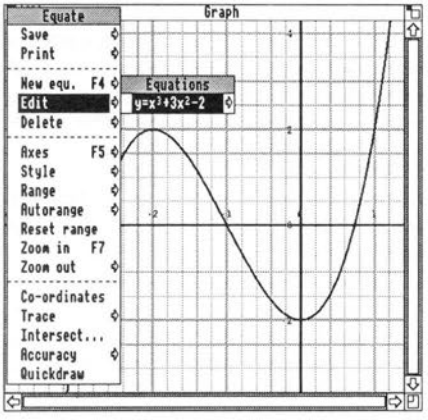
Sleuth 2 costs £49 +VAT from Beebug or £54 through Archive. A

Equate

Robert Chrismas

Equate is a graph plotting program which can also find numerical solutions to equations. It can handle cartesian, parametric and polar equations and the finished graphs can be printed or saved as drawfiles.

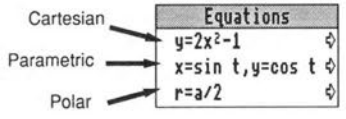
Equate is RISC OS compatible.



Expressions

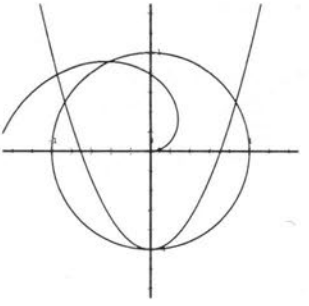
Expressions are entered in a format which is as near as possible to the standard algebraic notation but with the limitation that all the characters must be on one line. Expressions like $(x^2+\cos 2x^2)$ are interpreted correctly.

Trigonometrical, hyperbolic and exponential functions and their inverses are all supported. Eight banks of 'insertion icons' allow these functions to be entered easily. There are lots of buttons so, should you need it, a function like cosech^3 can be entered with a single click.



Three types of function

Equate can superimpose the graphs of different equations. It has no difficulty handling different types of equation simultaneously so the graph of a polar equation can easily be superimposed on the graph of a parametric equation. Each equation can be edited or deleted separately and the display will update accordingly.



Some simple functions

The 'range'

There are several ways of specifying which part of the graph is to be displayed. Maximum and minimum values for x, y, t and a can be entered directly in a dialogue box. Alternatively, you can zoom in by dragging a rectangle or zoom out by specifying a scale factor. It is also possible to set a 'local range' for each function – this causes just a part of the graph to be plotted.

Finally, there is the 'autorange' menu option. For cartesian equations, autorange adjusts the y scale to include the whole graph for the given x values. For polar and parametric equations, both the x and y scales will be adjusted to display the whole graph.

A question

While checking the autorange option, it occurred to me that it would be very difficult to get a program to choose the set of x values which would display a graph including all the roots, all the turning points, and any discontinuities of a function, or at least enough of the graph for any repeating pattern to become apparent. With polynomials, it is easy enough but for more complicated functions it might not always be computable. Does anyone know?

The axes

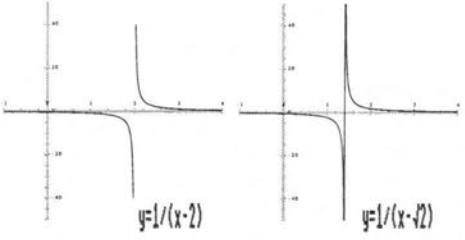
By default, Equate will choose sensible divisions and subdivisions for the axis but the user can overrule

these settings. You might want to do this if you needed to produce a graph which appeared to have been drawn on graph paper. The default subdivisions are usually too far apart to read off coordinates accurately by eye.

It is possible to choose suitable divisions and subdivisions so that the x axis can be read either in degrees or radians.

Accuracy and discontinuities

Equate evaluates coordinates at regularly spaced intervals. The user can set the 'accuracy' which determines the number of points to be calculated. The higher the accuracy, the longer the calculation time.



Some discontinuities are not detected

If the expression is undefined (infinite) at any point, Equate will leave a gap. If the discontinuity lies between two calculated points, Equate will join the points. To make sure that no obvious discontinuities are missed, Equate also checks all the x division values for discontinuities.

The display

The colour and thickness of the axis and of each curve can be adjusted.

The whole display can be saved as a drawfile or printed out at once. In the drawfile, curves are constructed of (straight) line segments. If the graph is straight, the number of segments is adjusted automatically so that they are drawn with a single line segment. If the graph is curved, the size of the drawfile depends on the chosen accuracy. A (probably excessive) accuracy setting of 1000 requires about 13Kb per equation.

You can also save a file in Equate format. This file contains all the functions and all the other settings of the program. The manual includes an appendix which describes the file format. I thought this was a good idea.

Solving problems

Equate can be used to find numerical solutions to equations. You can enter an x value for a cartesian equation and Equate will calculate the corresponding y value and the gradient at that point. For polar and parametric graphs, you will have to specify the value of the angle or the parameter.

In the trace mode, you can track along a graph with a display showing the co-ordinates and the gradient at each point. Equate can also find a numerical solution for the point of intersection of two graphs.

The manual

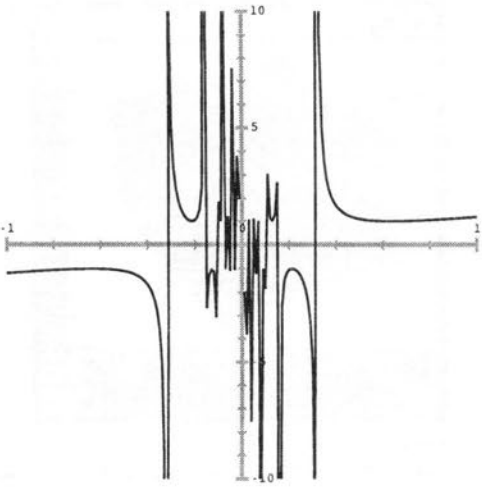
The manual covers all the features of the program and includes some example problems with explanations and solutions. So far as is possible, the manual avoids technical mathematical terms. I think this may have been taken too far. Potential users of the program will probably have a mathematical background and some may be irritated by the manual's use of the term 'range' to refer to the set of values which the independent variable may take. There would have been no harm in introducing the term 'domain' with a brief explanation but this is only a pedantic criticism – the manual is perfectly clear.

Good value?

I suppose most people who use this program will be involved in education. Equate could be used individually or with a class to 'try out' a lot of functions very quickly. Teachers will also find it useful for producing neat, accurate, pre-drawn graphs on handouts and work sheets.

If you are not familiar with this sort of program, you should be warned that there are functions which will upset any computer algorithm. For example, 1/(sin(1/x)) is always going to be tricky to draw. In cases like this, all you can expect is that the program will not crash. Equate does not crash and it draws a curve from which you should be able to deduce the true shape of the graph.

Since the program is RISC OS compatible, I suppose it is suitable for use by children of any age who are capable of finding their way around the desktop.



1/(sin(1/x)) – a tricky function

How much they will understand of the graphs depends on the difficulty of the functions chosen and the children's mathematical ability and not on their computer competence.

Thinking about my own A level mathematics class, I would certainly prefer to use Equate instead of the rather antiquated single-tasking program which we use now. However, our present program is able to use numerical estimates of the gradient to produce an approximate graph of the gradient function. Equate would benefit from a similar feature and if it could also do numerical integration, that would be very welcome.

Equate, from PTW Software, costs £17.95 inclusive of VAT, post and packing, unlimited site licence, free upgrade path and technical support. This is a reasonable price for a single user, but since it includes an unlimited site licence, it represents *excellent* value for educational establishments. A

ArchiTech

Jim Wyllie

ArchiTech is a 3D modelling package written by the same company that brought us SPEX and is designed to be intuitive in use with options to suit most users. I have run ArchiTech on every Risc computer at our school – from A3000, 2Mb, ARM2 to Risc PC – with no serious troubles at all. The obvious advantages of speed, memory and colour availability are taken for granted. Certainly, I have yet to come across an unsatisfied customer, of any age.

Installing

ArchiTech comes in a hardbacked ring folder similar to Impression and comprises a series of six example discs and a single compressed master program. The protection included is, in my opinion, the most effective, especially for school. The master disc is named before use – with the master, after installation, safely stored away in its box.

The manual is excellent, full of useful graphics and written in a readable language. It must have been good because I actually read it – not a common phenomenon with me.

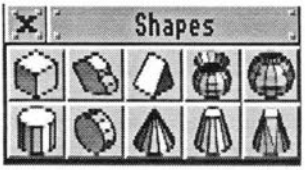
The mixture of example files is very varied, demonstrates just what can be achieved with this program and gives a good starting point to prospective users. You are given a series of ArchiTech models, interesting backgrounds, textures for your own drawings and a group of Ace films. One disc also includes a three-sided function strip in drawfile format.

Installation is handled in a similar manner to Style. Double click the installation program, answer the questions and do as instructed – with the program decompressing efficiently onto anything from 800Kb floppy (leaving enough free space for printer and system resources) to hard drive.

Starting up

On loading the application, a banner screen (including the registered user's details) is displayed while ArchiTech installs itself onto the iconbar. Clicking once on this icon opens a user-defined number of windows, each of which is now described in turn. A complex option list is acted upon when the program is first loaded, setting various things including the scale, grid type, hardcopy format, and an automatically saved backup file. If you are using a locked

Risc PC, make sure the backup file is saved into the Public folder.

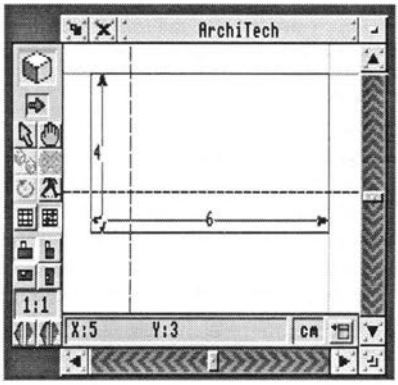


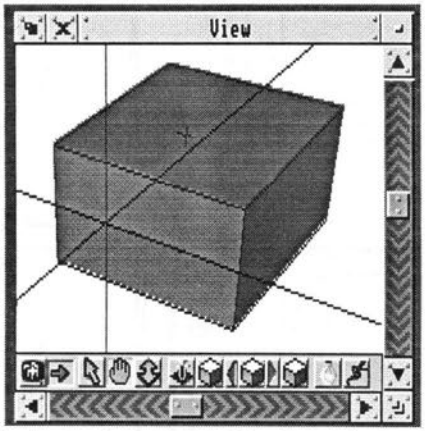
Edit window

This is the main input window providing ten different complex 3D forms which can be selected from either a graphic menu, a normal menu or preset function keys. They range from the simplest cube to complex extrusions, sweeps and wedge shapes. As the number of sides of any figure can be fully defined, a four-sided cone would give a square pyramid.

A grid, with lock, is provided and you can copy, move, resize and rotate any of the selected forms. A very useful addition is that the dimensions are shown as you draw, together with the co-ordinates of the cursor, so that working to a certain size is straight forward. The unit of measurement and scale of the drawing are also user-definable.

Drawing a selected form could not be simpler – choose the elevation in which to begin and construct the first section of the shape using an intelligent 2D rubber-banding system to help. You are now moved automatically to the second view and led through the completion of the form. Some of the possible forms are more complex than others but all are quickly learnt and you are always shown the outlines of the form as it is built.





A further, and very powerful, construction method is also available – that of importing a drawfile and extruding it to a suitable dimension. Drop the drawfile onto the Edit window, enter the depth of the intended extrusion plus a number of the optional effects and within a few seconds the extruded form is constructed.

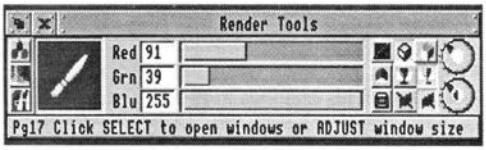
When using the lower power Acorn computers, we found that patience must be applied during the construction stage, to give the processor time to work – drawing too quickly sometimes gave problems. The excellent backup file system was utilised as a safety net.

View window

This window shows, in either three point Perspective or in Isometric, a view of your design which is constantly updated as you work in the Edit window. You can pan and magnify the view of your form, select single or multiple facets for colouring, manipulate the single lighting source and add a suitable backdrop in the form of a sprite, all from simple tool icons. The effect of the lighting makes the object come to life, giving a more three dimensional feel.

Rendering a form could not be easier – select the surface(s), then the required colour or texture, click the painting icon and the colour is added immediately. This can be updated, with ease, at any time in the future.

The animation possibilities are also very versatile, although, one word of warning, save your design



before you start. After making an animation mistake, I found that recovering your basic design took some patience. Models can animate automatically or operate only after a specific mouse action.

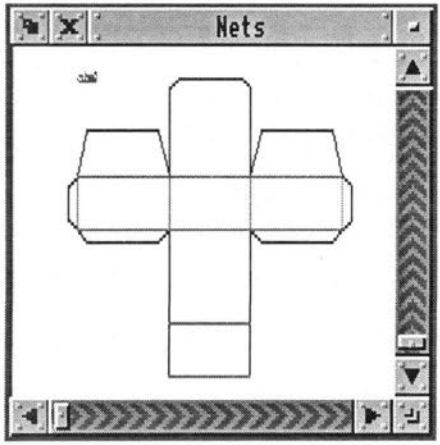
Render tools

This is the effects window. It allows the selection of colour or texture from a series of three active graphic menus, addition of colour to the edges, removal of individual facets and the making of transparent surfaces. A drawfile or sprite can be wrapped, or mapped, around one or more surfaces with the further option of making invisible any black portions – a useful method of making odd shaped holes or windows. You can make your object look like any material from glass to granite, steel to plastic and all at the click of the mouse button.

An interactive help line is provided. This helps the beginner and supplies the correct page in the manual for more information, updating continually, no matter which of the ArchiTech windows you are accessing.

Full screen view

One of the options from the View window is the full screen mode. You are given selected modes to see your final model in full colour together with the selected background. Selecting this mode moves the computer to single task, taking over the whole screen and providing a far greater redraw speed. Your model can now be moved, in real-time, by selected mouse movements. If any animation is available, this can be operated easily with a single key press. If your model is that of a building, or similar, then you can set the mouse to walk you through, or around, the model, giving the illusion of a virtual reality demonstration. Everything shown in this full screen mode can be recorded as either Ace or Replay film, for display later without the main program. Some of the available modes give superb results – even modes 13 or 15 give ample results for most needs.



At this point the smaller memories and the slower processors of our A3000s show their age although the machines are still quick enough if the drawing is not too large.

Net window

As if we had not had enough for our money, every form that you draw can be plotted, or drawn, as a surface development (Net), including gluing tabs, with or without the appropriate rendering details and choosing any of the given output hardware options – anything from A4 printer to A2 plotter. Preparing a hardcopy of our practice design, using an HP550C, was straightforward, produced a reasonable rendition and printed evenly, minimising the streaking effects.

Output

To be of any serious use, a 3D package must enable you to transfer your drawings to other programs. ArchiTech allows you to save in native format, export the view window image as a sprite or a drawfile or as a Working Drawing – a drawfile showing the object without dimensions, in three elevations, in either first or third angle, together with a perspective view. I had a small problem here with the working drawing as it required enlarging, vertically, by a factor of approximately 1.8. This bug is being worked on at the moment, does not occur on the Risc PC and is easily rectified with a Keystroke action file.

You can also output any design in a format suitable for SPEX, the sister 3D manipulation package from the same company.

Support

The quality of support from Aspex has been excellent. One phone call brought a result in ten minutes. An open day was held with one of the team for all interested bodies in Edinburgh. Demonstrations were given of how to get the best from ArchiTech. Most importantly for its users, Aspex acted on our list of wants/needs immediately. The programmers are continuing to improve ArchiTech with the inclusion of 24-bit colour almost complete, two more drawing tools being developed and printer routines being improved. At the moment, all upgrades are free (provided you enclose a SAE) and are turned round efficiently.

Conclusion

This program is designed with the Risc PC in mind, but is still capable of running on a lowly 2Mb A3000. I have now taught classes of different age groups and watched them enjoying success with ArchiTech within a very short time. My friend's son, aged seven, can understand the basic system and loves to show his creations to all who are available.

The program does have a few problems but these are all being addressed and few make the platform unstable. Imagine taking a colour scan of a biscuit wrapper, mapping it onto a drawing of a cylinder, adding a suitable background and rotating the result in real-time – it's been done – it took no time at all and the final result was very effective indeed.

I have used many different 3D modelling packages and I cannot recommend this one enough – simple and easy to use, plenty of features and excellent value for money. ArchiTech can be bought from Aspex for £169 +VAT or £185 through Archive. **A**

Fact-File

(The numbers in *italic* are fax numbers)

4th Dimension	1 Percy Street, Sheffield, S3 8AU. (0114-270-0661) *(0114-278-1091)*
4Mation	14 Castle Park Road, Whiddon Valley, Barnstaple, Devon, EX32 8PA. (01271-25353) *(01271-22974)*
Abacus Training	29 Okus Grove, Upper Stratton, Swindon, Wilts, SN2 6QA.
Acorn Computers Ltd	Acorn House, Vision Park, Histon, Cambridge, CB4 4AE. (01223-254254) *(01223-254262)*
Anglia Television	Media Development, Anglia House, Norwich, NR1 3JG. (01603-615151) *(01603-631032)*
APDL	39 Knighton Park Road, Sydenham, London, SE26 5RN.
Aspex Software	Heather House, Tavistock, Devon, PL19 9AG. (01822-611060) *(01822-611061)*
Avie Electronics (p25)	7 Overbury Road, Norwich. (01603-416863) *(01603-788640)*
Beebug Ltd (p65)	117 Hatfield Road, St Albans, Herts, AL1 4JS. (01727-840303) *(01727-860263)*
Cherisha Software (p9)	51 Swallowfield Road, Charlton, London, SE7 7NT.
Clares Micro Supplies	98 Middlewich Road, Rudheath, Northwich, Cheshire, CW9 7DA. (01606-48511) *(01606-48512)*
Colton Software (p30)	2 Signet Court, Swanns Road, Cambridge, CB5 8LA. (01223-311881) *(01223-312010)*
Computer Concepts (pp15/29)	Gaddesden Place, Hemel Hempstead, Herts, HP2 6EX. (01442-63933) *(01442-231632)*
Creative Curriculum Software	5 Clover Hill Road, Savile Park, Halifax, HX1 2YG. (01422-340524) *(01422-346388)*

Cumana Ltd	Pines Trading Estate, Broad Street, Guilford, GU3 3BH. (01483-503121) *(01483-503326)*
Dalriada Data Technology (p8)	145 Albion Street, Kenilworth, Warkwickshire, CV8 2FY. (01926-53901)
Datafile	71 Anson Road, Locking, Weston-super-Mare, Avon, BS24 7DQ. (01934-823005)
David Pilling	P.O.Box 22, Thornton Cleveleys, Blackpool, FY5 1LR.
Dave Lawrence (p25)	33 High Street, Farnborough, GU14 6ES.
Doggysoft	7 Blackhorse Crescent, Amersham, Bucks., HP6 6HP.
Font Company Ltd	47 Goodhale Road, Bowthorpe, Norwich, NR5 9AY. (01603-748253) *(01603-740203)*
GamesWare	Unit 26, The Bartletts, Hamble, Hants., SO35 5RP. (01703–456523) (or 0243-531194) *(01703–456523)*
Hodge Electronic Services	16 Mold Road, Mynydd Isa, Clwyd, CH7 6TD. (01244-550803)
Honormead Software Solutions	Admin House, The Grange, Hospital Lane, Michleover, Derby, DE3 5DR. (01332-512848)
iSV Products	86, Turnberry, Home Farm, Bracknell, Berks, RG11 8ZH. (01334-55769)
Ivoryash Ltd	14 Perwell Close, Bredon, Tewkesbury, Gloucester, GL20 7LJ. (01684-73173)
Kocksuster Publications	St Augustine's Cottage, High Street, Mill Hill, London NW7 1QY. (0181-959-3321) *(info@koekie.demon.co.uk)*
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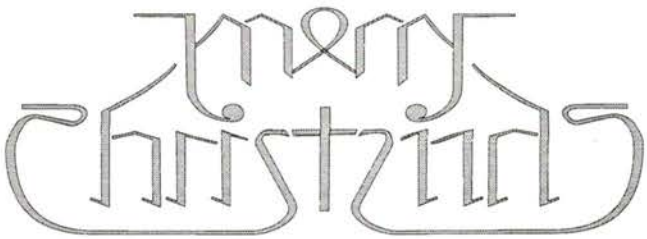

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